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Editor—HENRY E. SIGERIST

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Editor—HENRY E. SIGERIST

VOLUME IV MAY, 1936 NUMBER 5

THE SCIENTIFIC SIGNIFICANCE OF PARACELSUS [1]

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Science is not a net gain for humanity. We do not find ourselves in free possession of it. For science is a problem. It is a maze of problems, nay, a growing maze of problems. Though we succeed in comprehending things in conceptual form, this truth, this scientific knowledge always remains open to doubt, in some way. And the consciousness of this state of suspense is about as old as science itself.

The occidental history of this consciousness goes as far back as the fifth century B. C. when, in the Eleatic school of philosophy, conclusive proof was given, in conceptual terms, that notwithstanding his swiftness of foot, Achilles could never catch up with the tortoise, provided the animal were given the start in the puzzling

[1] A paper read before the Swiss Scientific Society (Schweizerische Naturforschende Gesellschaft), at its 116th annual convention, in *Einsiedeln*, August 18, 1935.—First printed, in German, in Schweizerische Medizinische Wochenschrift, 66th year, 1936, No. 1, p. 17.

The editor and the translator take great pleasure in presenting this paper in English, by way of celebrating the sixtieth birthday of Professor Medicus who was born April 23, 1876.

handicap. Of course, what the proof demonstrated was not actually believed, but it brought into consciousness the precarious side of the attempt at penetrating reality with the clearness of the concept.

The very insight into this precariousness is ambiguous and problematic in turn, since it presents two alternatives: Does the conceptual necessity of thought fall short of reality,—or does reality itself reveal an inherent shortcoming when confronted with the requirements of truth? A way must be found to solve this antithesis, and it is Plato who pointed the way which the Occident followed for a long while, in its spiritual history. The solution was seen in this that, on the one hand, thought cannot but fall short of truth if we restrict thinking to the terms of the sensuous, since these terms reduce thought to mere opinion. On the other hand, if we take for reality whatever we have merely accepted owing to the testimony of the senses, this ostensible reality cannot measure up to the necessity required by thought. Genuine reality, however, is at one with the necessity of genuine truth.—This solution entails definite consequences regarding the question what makes human life worth living. Man severs himself from genuine reality if he restricts himself to sensuous experience and seeks the meaning of his life in that which is accessible to such experience. Human life is up to its due level only if man seeks his bearings in the world of ideas, in the realm of the eternally true, good and beautiful.

The Christian middle ages interpreted this philosophy as a providential preparation of the way for the Gospel. The eternal had to become the goal and the content of life. The middle ages yielded but small gains for the empirical sciences. What was needed, by way of empirical knowledge, was taken from tradition, a tradition which dated from the Greeks, and which had not been greatly enriched by the Arabian scholars. During the time of the Renaissance, however, there arose a new desire for empirical knowledge. One would not depend on the doubtful statements of ancient authors, wherever it was possible to make observations of one's own. This frame of mind is characteristic of the new age, and we may rightly find an expression of it in the tenet: *Alterius non sit, qui suus esse potest*—words upon which Paracelsus had laid a personal stress.

Paracelsus was of that frame of mind, yet what is magnificent

about him, and what makes him more than a copartner in the movement which restored empiricism to a place of honor, is the fact that Paracelsus was keenly aware of the problematical nature of empirical knowledge. At a crucial point of spiritual history, he takes up the great task of Platonic philosophy to lead us beyond scientific onesidedness. He teaches that observation without ideas is misleading. And observation lacks ideas as long as man stands over against nature, merely as man, with a consciousness that stands only on its own ground and is thus limited to its own realm. Such a one is "only an experimenter, that is a haphazarder, a desperate hoper" (nur ein Experimentator, das ist ein Geratwohler und verzweifelter Hoffer). All he can do is to start from the individual observations which happen to be accessible to his sense perception, and to make generalizations and complementary constructions, from his fancy. This is the way of the "reason of brutes," of "brutish ratiocination" (der viehischen Vernunft, des viehischen Verstandes), and it leads at random into the blue sky of chance.

With the epithet brutish, Paracelsus designates not only inferiority in general, but very definitely the lack of godlikeness in a man. If God is said to have knowledge, it is surely not a knowledge which approaches reality from without, and which connects the perceived details by means of the imagination. For Paracelsus, man is an animal, a brute, insofar as he is not the image of God.[2] Many classical authors have known nothing better than brutish reason. And if those who still depend on it discover that their way is not leading anywhere, they begin talking of the limits of human knowledge. They "fancy that whatever their brutish reason cannot fathom is unfit for man to comprehend, as if philosophy had its limits in Aristotle, and medicine in Galen, men who did not write but against truth" (vermeinen, was ihr viehischer Verstand nicht ergründen möge, das sei dem Menschen unmöglich geben zu werden, gleich als sei der terminus philosophiae allein in Aristotelem gesetzt und der terminus medicinae allein in Galenum, die doch nicht anders dann

[2] See: Bodo Sartorius Freiherr von Waltershausen, Paracelsus am Eingang der deutschen Bildungsgeschichte (Felix Meiner, Leipzig 1936), p. 35.—Rudolf Eucken, Beiträge zur Einführung in die Geschichte der Philosophie (Dürr, Leipzig 1906), p. 34.

wider die Wahrheit geschrieben haben). For whatever a ratiocination without ideas, and whatever man's own fancy manage to assemble into a system is against truth. The physicians who believe in the " four Humores " and in such like inventions " which have deceived the whole medical world " (durch die die ganze Medizin betrogen ist worden), practice their art as " violence " (Gewalt): they try to extort something from nature. The true physician, instead, is " a servant of nature,"—in the service of God who is " the master of nature."

Paracelsus appeals to experience, against the practice of his opponents who do violence to nature, and against their theories, their fancies and speculations. " Do not let fancy overpower you,—the outward eyes must confirm everything." (Lasset euch die Fantasey nicht überwinden . . . : die äussern Augen müssen die Ding alle bestätigen.) Over against fancy and empty speculation, empirical observation has an unlimited right. But the principle of its fertility does not lie within observation itself. The origin of all thorough wisdom lies in the " light of nature which is lit by the Holy Spirit " (Liecht der Natur, das angezündt wirdt durch den heiligen Geist). What is the meaning of these words?

We are here concerned only with their scientific meaning, and, in this respect, the reference to the " Holy Spirit " signifies an opposition to the " brutish reason." In relation to this reason, reality appears as the mere object, i. e. as standing over against this reason which is not inwardly one with reality, and which, therefore, must fall back upon fancy and thus remain on the level of the fragmentary, unable to penetrate to genuine truth. The light of nature, however, which is lit by the Holy Spirit, leads beyond the uncertainty due to the lack of orientation, and beyond the patch-work of fanciful speculation. As long as we can see nothing in observation except its empirical content, there is no alternative whatever to that patch-work. But in the light of nature, what we have empirically observed proves to be evidence of how and what the All is. Wherever this light shines, we see in the observable individual not only the individual instance, but also nature itself which is manifested in the individual,—nature as a whole.

Heaven and earth and air and water cannot be understood separately, "divided and dismembered" (zerteilt und zerstückt), for, in their deepest truth, they are not four things, but only one thing. And in man, in this most intense manifestation of the totality of nature, the physician finds nothing but what he also finds in the outward elements. Nothing distinguishes the microcosm from the macrocosm but "the shape of form" (die Gestalt der Form). The light of nature enables us to comprehend the whole in the parts, to grasp in the sensuously observed that which really is. Paracelsus demands that the physician ought to recognize what nature is, even in the diseases. To the physicians "the secrecy of nature is patent, and the other scholars are made privy to it by the physicians" (ist die Heimlichkeit der Natur offenbar, und den andern Gelehrten wird es durch die Ärzte mitgeteilt)—by the philosophical physicians, of course. "The first ground of medicine" lies in philosophy, which understands nature as the unity of all its manifestations and of their metamorphoses. The philosophical physician recognizes nature itself, in the disease,—the whole nature. His concern is never a mere disease as an isolated fact, and never mere man.

Nature as a whole is perfect. Therefore, to recognize nature, in a disease, means also to recognize the remedy. "Thus, it is my thesis that nature itself is the disease, hence nature alone knows what the disease is. And the art emerges from nature, not from the physician. Therefore the physician must grow from nature, with perfect understanding." (Dann also ist mein Fürhalten . . . , dass die Natur die Krankheit selbst ist: darum weiss sie allein, was die Krankheit ist. . . . Aus ihr geht die Kunst, nicht aus dem Arzt; darum so muss der Arzt aus der Natur wachsen mit vollkommenem Verstand.) He alone is a genuine physician in whom nature's productive creativeness becomes conscious of itself. What he perceives with his senses becomes patent, for him, in its essential relations; he sees the connexions within which it is what it is, expressing, as it does, the whole of nature. These connexions relate it to perfection. Nature with its life and creativeness, with its becoming diseased and its overcoming of disease, reaches the consciousness of itself in the philosophical physician. And the relation of philosophy and medi-

cine is this: nature's own becoming conscious of itself, as a total life, is philosophy. " He, therefore, is a philosopher who knows one in the other." He, that is, whom the diversities do not confuse. And " he who thus is a philosopher, he shall at once join the Faculty of Medicine, and apply the outer to the inner; this reversal makes the physician." (Darum ist ein Philosophus, der eins in dem andern weiss. . . . der nun also ein Philosophus ist, der soll alsbald in die Fakultät der Arznei treten und das Äussere in das Innere wenden: das Umwenden gibt den Arzt.)

Paracelsus repeats emphatically that it is the Holy Spirit which lights the light of nature. The man who, with his consciousness, stands over against reality which, as object, confronts him, as subject,—this man does not attain genuine knowledge, the truth of which is sure. " What can man invent by himself! Not even to put a patch on a pair of breeches." (Was erfindet der Mensch von ihm selbst oder durch sich selbst? nicht ein Pletzlin an ein paar Hosen zu setzen.) The genuine knowledge of reality springs from the miracle which occurs when consciousness is nurtured by the very fullness of reality upon which it rests. Consciousness, then, is no mere illuminant that shines upon reality from without; it is the revealing radiance from within. For then, in our consciousness, reality becomes conscious of itself. As long as our consciousness, having forgotten its origin, is reduced to the empty function of logic it is restricted to trying its best by way of approaching from outside a reality foreign to it, and the results cannot be other than inadequate. But whenever the aliveness of reality fills consciousness so that consciousness is no longer a mere awareness of a self which finds itself severed from, and must set itself in contrast with a foreign nature,—in short, whenever the nature which is life itself holds and fills consciousness, then there is certainty of knowledge.[3] The experience of this miracle of genuine knowledge is a matter of Grace. The self-dependent will of man has no power to raise consciousness to the dignity of possessing substantial reality. The spirit alone which shapes the All can also shape the consciousness of genuine truth.

[3] True enough, the formal articulation of knowledge remains subject to the historical conditions. But that is another problem.

It is at once pride and humility to say that the medical art is "an art from God" (eine Kunst aus Gott), and that God himself made Paracelsus into a physician. The physician is to understand the microcosm from the cognizant living experience of nature in its undivided totality. This experience is not within the reach of a man who takes his stand upon himself alone, who isolates himself in spirit. The physician must know as a whole the four elements, these "mothers of all things," and on the basis of this knowledge he is to grasp the microcosm, "neither detracting anything from God, nor adding anything" (nichts Gott entziehen noch zulegen), but "always expecting Grace and Mercy" (allezeit Gnad und Barmherzigkeit erwarten). Man does not take "the wisdom of the arts" from himself. "Just as the angel came to Mary and said 'you are full of Grace' . . . , just so grace is given to us secretly, and each shall keep the gift which God sends him, giving this to the one, that to the other, and he shall esteem it as an angelic message, which is much the same gift." (Wie der Engel kam zu Maria und sagt: 'du bist voller Gnaden' . . . , also werden uns die Gnaden heimlich mitgeteilt, und ein jedlicher behalt die Gab, die ihm Gott zuschicket, dem das, dem ein anders, und lass ihm's sein ein Englischen Gruss, der so viel ist als dieselbig Gab.)

In the writings of Paracelsus we meet again and again with the depreciatory rejection of the accomplishments of a mind which sets itself over against reality and which moves from its own incentives, that is from fantastic incentives. The physician is born "from nature." Nature—we may interpret—is not a mere object for the physician, at least not originally, nor ultimately. He does not merely find it outside of himself, nor does he, in contrast to that object, find himself as a subject without reality, and as consisting of a merely formal necessity. On the contrary, the experience of unity and totality upholds him.

And here is our main question. In what way can and will the experience of totality take effect in empirical science? In the first place, it will necessitate symbolical formulations for whatever is alive. And this is what is philosophically important. It is impossible to speak of life in objective terms. Life is not an object, not objectively intelligible. It can be understood only from the immediacy of

the act of life, and for consciousness this understanding can be put in fixed form only by means of symbols which refer to the self-certainty of immediate life. This immediacy alone can furnish the norm for the meaning of those symbols.

Thus, there is a profound necessity for the imagery in the terminology of Paracelsus. He speaks, for instance, of the creative principle of nature as Vulcanus, and the individualizing and individually acting principle of life he calls the Archaeus, or the "inner Vulcanus." No doubt, these are mythological concepts. And what is true of every mythology is true here: one must accept on mere faith the reality of these creative powers which, on account of their non-objectivity, cannot be demonstrated. Paracelsus simply presupposes them, in his empirical research. But he demands explicitly that nothing shall be accepted that contradicts the testimony of the senses, and he inveighs sharply against all fancying. Therefore, his Vulcanus, his Archaeus, and the like, are not to be taken for fancies. We must try and understand him properly. The fancy which he deprecates is the fancy which dabbles in the realm of experience, directly or indirectly, asserting the objective existence of fanciful things or fanciful relations,—asserting for instance that there are just four Humores. Fancy, though, can never ascertain what exists objectively; this must be ascertained by means of sense perceptions. Yet, the proper interpretation of the facts of the sensible world requires more than mere sense organs, and more even than the human understanding which seems to be self-sufficient, in appearance, and which, thus, claims a logical autonomy. Owing to this autonomy, the understanding knows itself as subject, and accordingly claims a right to stand up against reality and treat it as a mere object. This very opposition to reality, however, reduces that human understanding to an empty understanding which could put some order in the motley tangle of facts only by calling in fancy, and fancy would entangle that understanding in errors. Whosoever wants to understand nature properly needs faith in nature's own light, of which, and of whose revelation, he can indeed speak only in terms of mythological symbols. Nature itself makes known its life to the man in whom the light of nature is lit. Nature lives, it is living unity, and the words "Vulcanus" and "Archaeus" tell just this; Vulcanus is the all-

embracing life of nature as a whole, Archaeus is the individual life of the single organic form.

The scientific significance of these mythological concepts is manifest in the fact that they determine the very idea of definite aims of empirical research, that they guide research in a necessary direction. For instance, a great number of chemical, and especially bio-chemical problems spring from the idea that in the organism there must take place a definitely directed transformation of the foodstuffs, in order to enable the organism to maintain its life, and to go through its characteristic development. And this is the very function of the Archaeus. He separates things from each other, gives to each what is appropriate for it, and thus establishes its essential order. In the stomach, he artfully fuses the food, and distributes to all members what is due them. All you need to do is eat and drink: "Get and give him his stuff, let him decompose it and put it together in the form things are to have; he keeps things within bounds, attending to measure, number, weight, proportion, length, and all." (Trag du nur zu und gib ihm sein Zeug, lass ihn scheiden, formieren, wie alle Ding sein sollen: er hält die Mass, Zahl, Gewicht, Proportion, Länge und alles.)

Paracelsus insists on keeping our eyes open for everything visible and, at the same time, on our being deeply aware of the invisible, which is the ground for the visible. Thus, Plato's question about the way in which the world of sense partakes of the realm of ideas finds a new answer which widely fecundates empirical research: we learn that the spiritual, the supersensuous is indeed present in nature, but not present for mere sense perception, not for the mere understanding, which is "brutish." The spirit which makes the world live can be known only by those blessed by that spirit, doing away with the alienation of consciousness from nature, and with the helplessness of a mind severed from nature. Blessed with an immediate living experience of the creativeness of nature, the mind can grasp the biological meaning of the chemical, and of all natural processes.

Paracelsus calls the activity of nature by mythological names, and these names seem far from modern science. Also, this impression may become even more pronounced, owing to the fact that Paracelsus has fused into his mythology of nature the mythical content of folk-

lore, the gnomes in the earth and the sylphs of the air, the water undines and the fiery salamanders, and many others. Paracelsus was so disgusted with the erudite conceit of academic medicine that, with all the greater solicitude, he delved into folklore, and even into popular superstition.

Of course, he could not help being part of the life and mentality of his age, although he was by no means its enslaved product, but a masterful innovator. Even the deepest insight wears the garb of its time, no matter at what time of man's history it is gained. And, as far as the terminology of Paracelsus is concerned, with its intuitiveness and its imagery, the subsequent centuries have indeed been hard upon it, and it has been crowded out by abstractions. These, now, no longer appeal to the immediate self-certainty of actual life, and they do not depend on it for their intelligibility, nor are they intelligible by way of analogies with the acts of life. Rather, these abstractions are to be grasped by means of exactly defined operations of thought, based upon objective observations which can be verified at will. However, the victorious growth and spread of these abstract concepts is linked with the rise of a mechanistic view of the world. All mechanical conceptions are of an objective nature, and the more science seemed to succeed in what appeared to be its very mission, that is the more it succeeded in the ostensible understanding of the universe as a mechanism, all the more completely was its terminology to be cleansed of imaginativeness. The limitations of the objective abstractions could be recognized, and imagery could hold its own only insofar as the conviction asserted itself that nature is not spent in being an object for us, since nature is alive, and life is beyond the grasp of mechanistic constructions. (Or, they are beyond life, because they abstract from life, and thus form their Other World of shadows; life is hither, the abstractions are thither and cannot get back.[4])

To-day, it looks as if the epoch of the mechanistic view of the world were behind us. Scientific terminology has come to contain words whose meaning is not at all objective, words which do not appeal to mere objective thinking but to the self-certainty of life, of

[4] Translator's insertion.

the life in us, the life which we are. True enough, terms of personification do no longer agree with the taste of our time. But personification is not what matters. The point is that, in the very context of the natural sciences, and not only in the biological sciences, we meet with words like ' spontaneity ' or ' striving,'—terms whose meaning is not objectively intelligible, words which can be understood only from the self-certainty of our own life. If we recognize spontaneity and strivings in nature—be it in the sprouting seed, or in the elemental occurrences in matter—we acknowledge a subjective life in nature.

In the writings of Paracelsus, the subjective character of living nature is most explicitly expressed by mythological names like Vulcanus, Archaeus, and others. In our more reserved terminology, this character hides behind more noncommittal words, at least for those less versed in epistemological matters. The question may well be raised whether this reticence is an advantage. At least, the problematical status of the biological sciences could be made very much clearer if, for instance, the word ' causal ' were used to designate objective occurrences exclusively, and not used of the sprouting of a seed, and of other performances of the " Archaeus." This much is certain: that which Paracelsus means to say with his mythological names does not set him apart from modern science; on the contrary, it links him with those scientific tendencies which are contending with the mechanistic view of the world.

Yet, the fundamental principles which Paracelsus taught do not bear on philosophic views alone, they have also a very significant bearing on scientific method. The way in which Paracelsus understands the relation between the empirical and the metaphysical implies an obligation to devote oneself to the most extensive empirical research. Paracelsus travelled in many countries in order to learn about the diseases which occur in various lands. It was not that he cared much about being in a position to cure Croatians and Turks. But it is of the greatest consequence to him to base his understanding of the microcosm on that of the vaster world. All existing diseases are ways of nature. " The English Humores are not Hungarian, nor the Neapolitan Prussian. Therefore, you must go to the place where they can be found. And the more you seek them there,

and the larger the number you discover, the greater will be your understanding in your fatherland." (Die engländischen Humores sind nicht ungarisch, noch die neapolitanischen preussisch: darum musst du dahin ziehen, da sie sind. Und je mehr du sie dahin suchst und je mehr ihrer erfährst, je grösser dein Verstand in deinem Vaterland.) Nature is one. A comprehensive width of research, and a compendious acquaintance with points of view, are indispensible for any scientific occupation with nature. The recognition of this is characteristic of the attitude of modern research. And this very attitude made it possible for Paracelsus to become the early herald of many modern discoveries, and the precursor of modern investigators. Sudhoff, in particular, has made this plain. Sudhoff says:[5] "Many of his doctrines are intelligible only now, in the light of our modern experimental medicine, which has made such tremendous progress in many respects, and which alone leads to the full understanding of many particulars in the learning of that accurate observer of the sixteenth century. . . . It is amazing how much he has seen and observed, merely in passing. I will merely note that he was the first who recognized the relation between cretinism and endemic goiter. It is astounding to find, again and again, how with Paracelsus everything starts from observation, and what cosmic thoughts his soaring spirit correctly connects with those facts." This is perfectly true. Only we must not forget, in reading the last sentence of Sudhoff, that the cosmic thoughts were not casually appended to the observations, from without. They were sought very deliberately by the thinker who was quite certain of the light of nature. The consciousness of the man of research who is blessed with that light is imbued with a conviction about principles, and the articulation of this conviction is found in the concrete shape of his observations.

In the history of the natural sciences, we meet with discoverers who have found things without seeking them. One of them, for instance, was Röntgen who faced his great discovery with a truly imposing scholarship, yet without inward ties; he faced it, very literally, standing aloof. True enough, there is a danger of mere fantasticalness. In former centuries it was by no means small, and

[5] Schweizerische Medizinische Wochenschrift, 1926, p. 906 f.

Paracelsus recognized it. The wealth of gradually acquired objective information, and the scientific self-discipline which became ever more severe, had come to banish that danger from the mind of men like Röntgen. There are scientists, however, lacking none of that discipline, who are not aloof, but who find their most deeply personal destiny in their discoveries. Their scientific experiences bring into consciousness what they already possess, in their innermost life. They find because they seek, and they seek because they cannot help it: in them, nature itself craves to understand what nature is. Michael Pupin's splendid autobiography is replete with evidence. Pupin could draw the veil from many secrets of nature because he had divined, he had absorbed in himself, in great "visions," the working of nature, as "the divine method of speech and communication" [6]—during those many days and nights when, in his early years, he tended the oxen on the pastures of his native village in Serbia.

But the inward ties with nature, the consciousness of the living oneness with nature, have hardly ever been as powerful in a man, as they were in Paracelsus. The admirable width of his knowledge had its ground in a very definite kind of seeking in which, owing to the certainty springing from his immediate inner experience, the idea of the unity of creative nature was ever present. It was so intensely present in his seeking that it put his very senses, his receptivity, into an intelligently expectant tension. And all observations of nature were at once fused, by this idea, into the sphere of its own life, as a matter of course. As it is the case with all blest scientists, Paracelsus' consciousness, feeding upon scientific material, was the product and tool of the light, by means of which the creativeness of nature understood itself, outdoing itself in the form of spiritual light,—nature imbuing knowledge with reality.

Nature's undivided life is in everything nature produces; nature is ever whole. To be sure, this oneness is incomprehensible for the senses, and for the "brutish" reason. But, being manifest in every one of its creatures, the wholeness of nature is the sign of nature's having its root in spirit. It is a oneness which expands into mani-

[6] Michael Pubin, From immigrant to Inventor. (Scribner's, New York 1923), pp. 130 and 17 f.

foldness and, in the manifold, still remains undivided unity. But oneness in manifoldness is spirituality. This is why nature can come to understand itself, in the human spirit. Nature is nothing utterly different from the human spirit; it is not a mere object for the human spirit, as subject. For it is nature which, from itself, allows the human spirit to proceed, as a witness of the divine depth in which nature itself is held, and which works in nature, and through nature. Paracelsus says that even the kingdom of nature belongs to the kingdom of God.

After almost three hundred years, the deepest and most comprehensive thoughts of the great 'recluse'[7] came to new life,—most purely in the doctrine of Schelling. In one instance, Schelling wrote:[8] "All sciences have been invented as such only owing to the lack of immediate knowledge. . . . There were, and there will be, exceptional ones who do not need science, in whom nature sees, and who, in their very seeing, have become nature. These are the true seers, the genuine empiricists. . . . Whatever such a seer accomplishes, in the art of medicine, or in any other work, is a miracle, for it is known and done without mediation." Schelling mentions no name, but he may well have thought of Paracelsus, of whom Schelling's words may be used without restriction. And they express not only what Paracelsus was, but also what he knew, and what he himself had proclaimed. They show that the significance of the astounding man did not limit itself to the history of science, but that it powerfully reached over into philosophy. Even after centuries, the echo of the spirit of Paracelsus can be heard in the profoundly challenging words of one of philosophy's greatest.

[7] ". . . des grossen 'Einsiedlers' . . ."—Paracelsus was born (November 10, 1493) within two or three miles of the great pilgrimage place of *Einsiedeln* whose abbey (founded in 934) stands on the site of the hermitage of St. Meinrad (805-861) from which it took its name, meaning *Reclusion*.—The translator apologizes for his inability to render Medicus' ellipsis without the appearance of a mere pun.

[8] In the 'Critical Fragments,' from the 'Annals of Medicine as a Science.' Complete works, part I, volume VII, p. 246 f. (J. G. Cotta, Stuttgart und Augsburg, 1860).

HYGIENIC RECOMMENDATIONS OF *THE LADIES LIBRARY*

RAYMOND F. McCOY

An examination of the ideals of hygienic upbringing of children as found in *The Ladies Library* should be of no little historical interest to the modern reader; and such an examination is made doubly attractive when it is considered how much influence these three volumes must have had during the period from 1714 to 1772, when it went through eight editions in England, two in French, and was also translated into Dutch.

The Ladies Library was designed to serve as a guide for the conduct of the eighteenth century woman in whatever of life's situations she might find herself; and that this end was not inadequately realized is indicated by this list of chapter headings: *Employment, Wit and Delicacy, Recreations, Dress, Chastity, Modesty, Meekness, Charity, Envy, Detraction, Censure and Reproof, Ignorance, Pride, The Daughter, The Wife, The Mother, The Widow, The Mistress, Religion, Prayer, Fasting, Repentance, The Sacrament, Zeal, Perfection,* and *Scruples.*

The work was admittedly a compilation of earlier and contemporary eminent men of letters; neither the names of the sources, however, nor any definitely borrowed passages were indicated. We now know that among the originals of much of the material of *The Ladies Library* are such men as the French Archbishop Fénelon, the Divines Tillotson, Taylor, Fleetwood, and Scott, the Marquis of Halifax, Mary Astell, and John Locke.[1] All the extracts were wielded into a unified whole, expanded upon, modified, or curtailed by the compiler, the identity of whom has always been uncertain and a matter for some speculation. On the title page of the volumes we read, " Written by a Lady, Edited by Richard Steele." Recent investigation, however, establishes the probability that Steele himself actually compiled the work.[2]

[1] Raymond F. McCoy, *A Critical Examination of* The Ladies Library *and Inquiry into its Authorship.* University of Cincinnati M. A. Thesis, 1935.

[2] *Ibid.*

A section of *The Ladies Library* condemns strongly the practice, evidently not unusual, of saving mothers the inconvenience, restraint, and pain of personally feeding their young, through the use of wet-nurses. Not only is vehement disapproval registered on moral grounds, but we read, " *Strange Milk* which is often very disagreeable to the *Child*, and with which the *Child* to be sure Sucks in the natural Infirmities of the Nurse, together with a great deal of her natural Inclinations and irregular Passions, which many Times stick by the *Child* a long Time after; and, which is worse than all this, it sometimes happens that some secret Disease of the *Nurse* is convey'd to the *Child*." [3] Further, we are told, such nurses have no motive for safeguarding the youngone's health, for if he dies, another job awaits them. The result of this practice of utilizing wet-nurses, we find, is that " in several of the *Towns* and *Villages* about *London* where this Trade of *Nursing* is chiefly driven, hardly *one* in *five* of these *Children* lives out the Year. . . ." [4]

In a passage advising women as to the proper care of the health of their children—especially their boys—there are many curious items of advice given. Such subjects are treated as proper clothing, exercise, diet, sleep, and elimination.

With regard to varying the weight of clothing with seasonal climatic changes, it is stated that in neither winter nor summer should the child be too warmly clad, for human bodies will endure anything to which they are accustomed from the beginning. We read, by way of explanation, that " the *Face* when we are born, is no less tender than any other part of the *Body*, 'tis Use alone hardens it, and makes it more able to endure the Cold: And therefore the Scythian Philosopher gave a very significant Answer to the Athenian, who wonder'd how he could go naked in *Frost* and *Snow*; *How*, said the *Scythian, can you endure your Face expos'd to the sharp Winter Air? My Face is us'd to it*, said the *Athenian. Think me all Face*, reply'd the *Scythian*." [5] Although it is advised, in general, that mothers not shield their children too carefully against the colds of the English climate, they are especially warned that the child " can run about by

[3] ii, 223; *The Ladies Library*, Written by a Lady, Published by Mr. Steele, Printed for Jacob Tonson, London, 1714.

[4] ii, 224.

[5] ii, 273.

Day without a Cap" and should also go to bed without one, "there being nothing that more exposes to *Head-Aches, Colds, Catarrhs, Coughs*, and several other Diseases, than keeping the Head warm." [6]

That the child might not take a severe cold from accidentally wetting his feet, it is advised that his feet be accustomed to the conditions causing such sickness by being washed every day in cold water and by wearing shoes so thin as to allow entrance to water whenever he comes near it. The health of the child, it is maintained, is of far more importance than the probable objections of the mother that such action is too uncleanly, or of the maid that it is too hard to wash his stockings. "For what," the writer says, "is it, I pray, that makes this great *Difference* between the *Hands* and the *Feet* in others, but only Custom? I doubt not if a Man had been always us'd to go *barefoot* from his *Cradle*, while his *Hands* were constantly wrapt up in warm Mittins, and cover'd with *Handshoes*, as the *Dutch* call *Gloves*; I doubt not, I say, such a Custom would make taking *Wet* in his *Hands* as dangerous to him, as now taking *Wet* in their *Feet* is to a great many others. The way to prevent this is to have his *Shoes* made so as to *leak Water*, and his *Feet* wash'd constantly every Day in *cold Water*. . . . The *Health* and Hardiness procur'd by it, would be a good Purchase at a much dearer Rate; to which if I add the preventing of *Corns*, that to some Men would be a very valuable consideration." [7]

The final piece of advice concerning proper clothing of children is that it be sufficiently loose to enable nature to fashion them without restraint. Any attempt to improve on nature by stiff bodices or straight-lacing results in deformity. We read that "Narrow Breasts, short and stinking Breath, ill Lungs and Crookedness, are the natural and almost constant Effects of hard *Bodice*, and *Cloaths* that pinch; that way of making slender *Wasts* and fine *Shapes*, serves but the more effectually to spoil them. Nor can there indeed but be Disproportion in the Parts, when the Nourishment prepared in the several Offices of the *Body*, cannot be distributed as Nature designs; and therefore what wonder is it, if it being laid where it can, on some part not so brac'd it often makes a *Shoulder* or a *Hip*,

[6] ii, 274.

[7] ii, 275 ff.

higher or bigger than its just proportion?" [8] The relatively short lives of Chinese women is attributed to binding their feet so tightly (to have small feet) as to hinder the free circulation of the blood, and so cause the growth and health of the whole body to suffer. "How much greater Inconvenience," we are asked, "may we expect when the *Breast*, within which is plac'd the *Heart* and Seat of life, is unnaturally comprest and hinder'd from its due Expansion?" [9]

Stress is laid, in *The Ladies Library*, on the advantages to be gained from much play in the open air, for it is held that a body unaccustomed to heat and cold, sun and rain will be of no use throughout life. If sun-burn is advanced as an objection to such open-air sport, this is the retort: "And if my young Master be to be kept always in the *Shade* for fear of his Complexion, and never be expos'd to the *Sun* and *Wind*, it may be a good way to make him a *Beau*, but not a Man of Business. And tho' greater Regard be to be had to *Beauty* in the *Daughters*, yet I will take the Liberty to say, without Prejudice to their *Faces*, the stronger and healthfuller they will be; and the nearer they come to the Hardships of their Brothers in their Education, the greater Advantage will they receive from it all the remaining part of their Lives." [10] Concerning out-door play, however, several cautions are to be regarded. Children, when heated from exercise, must not sit or lie down on the cold or moist ground, drink cold water, or plunge in swimming. Swimming itself is held fundamental to education, and the author considers the benefits from bathing in cold water during the heat of summer as too numerous to mention. Instances are cited of many recoveries of health and strength through bathing even in the chilly streams of winter.

Regarding food, it is advised that children never be given flesh for the first three or four years, and after that, if the parent insists on feeding him meat, not more than once a day. Breakfast and supper should consist of either milk, water-gruel, flummery, milk-pottage, or a good piece of brown-bread. Plain, dry bread is considered the ideal food, because it is sufficiently nourishing yet unpalatable enough to discourage gluttony. Since they over-stimulate the appetite, spices or salt are not to be used. We are told that it is

[8] ii, 285. [9] ii, 284. [10] ii, 280 f.

advisable to vary the time for meals each day, because otherwise the stomach will come to expect food at a definite time. Should it be disappointed, peevishness, excess appetite, or loss of appetite results.[11]

As an article of food, fruit is not enthusiastically recommended in *The Ladies Library*. Children, though, are not to be forbidden all fruits, for such a course would result in bribery of servants or some other surreptitious device for obtaining them. No harm is seen in their eating well-ripened strawberries, cherries, gooseberries, currants, apples, or pears before meals or in the hot season. But they must be kept from all melons, peaches, plums, and grapes, for irrespective of how tempting their taste may be, they are all termed unwholesome.[12]

Small beer should be the boy's one drink, and he should receive this only after eating dry bread. The bread serves the double purpose of preventing too much drinking and furnishing a time interval in which the over-heated body may cool off before being subjected to any cold liquid. Of course children are to be kept from wines or strong drink.[13]

Nothing, we are assured, contributes more to the health and growth of a child than sleep. Therefore a plenitude of it is recommended. Between the age of seven and fourteen the time a child sleeps should be gradually shortened to eight hours—the amount advised for normal healthy adults. Concerning the type of bed most suitable we read: "Let his *Bed* be hard, and rather *Quilts* than *Feathers*; hard Lodging strengthens the Parts, whereas being bury'd every Night in *Feathers* melts and dissolves the Body, is often the Cause of Weakness, and the Forerunner of an early *Grave*. Besides that the *Stone* has frequently its rise from this warm wrapping of the *Reins*, several other Indispositions, and that which is the Root of them all, a tender weakly Constitution, is very much owing to *Down-Beds*. Further, he who is us'd to hard lodging at Home, will not miss his *Sleep*, where he has most need of it, in his *Travels* abroad, for want of his soft *Bed*, and his Pillows laid in Order; wherefore, I think, it wou'd not be amiss to make his Bed after different Fashions; sometimes lay his Head higher, sometimes lower, that he may not feel every little Change he must be sure to meet with, who is not design'd to lye

[11] ii, 288. [12] ii, 294. [13] ii, 290.

always in my *young Master's* Bed at Home, and to have his Maid lay all things in Print, and tuck him in Warm." [14]

With reference to elimination in children, the advice is simple: regularity in going to stool must be developed—once every twenty-four hours is desirable and after breakfast each morning is thought the best time. Physics are rarely to be used, and never should they be given as a preventative lest they become always necessary or lest they draw on diseases. As a parting word of advise, the author counsels that the less mothers and children have to do with physics and physicians, the better their own health and that of their children will be.[15]

The writer of *The Ladies Library* summarizes the hygienic recommendations of the work—items of advice disseminated widely throughout the eighteenth century—as reducing themselves to these " few and easie observable Rules; Plenty of *open* Air, *Exercise* and *Sleep*, plain *Diet*, no *Wine* or *strong Drink*, and very little or no *Physick*, nor too *warm* and *Strait* Cloathing, especially the *Head* and *Feet* kept *Cold*, and the *Feet* often us'd to *Cold* Water, and expos'd to *Wet*." [16]

[14] ii, 297. [15] ii, 301 f. [16] ii, 302.

LEOPOLD AUENBRUGGER (1722-1809).

Fig. 1.

TEXTS AND DOCUMENTS

ON PERCUSSION OF THE CHEST

BEING A TRANSLATION

OF

AUENBRUGGER'S ORIGINAL TREATISE

ENTITLED

"Inventum novum ex percussione thoracis humani, ut signo abstrusos interni pectoris morbos detegendi". [Vienna, 1761]

BY

JOHN FORBES, M. D.
[London, 1824]

INTRODUCTION BY HENRY E. SIGERIST [1]

Leopold Auenbrugger's treatise is a classic which should be in every medical student's hands. There are not many but still quite a few medical books which centuries after their author's death are still alive, still essentially true in spite of inevitable errors. Auenbrugger's is such a book and the young medical student endeavoring to learn the method of percussion should begin by studying it. He will find the basic sound phenomena clearly described and correctly interpreted.

It is not by accident that Auenbrugger published his book in 1761 the same year in which Morgagni's *De sedibus et causis morborum per anatomen indagatis libri quinque* appeared, laying the foundation of modern pathological anatomy. Both books are the result of the same elementary force, the advancing anatomical idea. Anatomy and the new physiology, based upon anatomy, had progressed so far that the physicians were beginning to trace the symptoms of disease back into the organism, searching for structural changes that might be responsible for the disease symptoms.

[1] Reprints of this paper are available through The Johns Hopkins Press.

Morgagni, the anatomist, proceeded anatomically, dissecting bodies of persons whose case-histories were known, trying to correlate the clinical observations with the anatomical findings. Auenbrugger, the clinician, endeavored to develop a method by which structural changes in the patient's body would become apparent to the examining physician. He discovered "a sign for detecting diseases of the chest," a sign that would allow the physician "to form an opinion of the internal state of that cavity." He was aware of the fact that his discovery was of great importance not only for the diagnosis but also for the treatment of diseases.

So far, the observation of pulse and respiration was the only method available in the examination of diseases of the chest. It was handled in a traditional manner and was used much more for prognostic than for diagnostic purposes. Pathological anatomy and physiology were not advanced enough to allow a correct diagnostic interpretation of pulse and respiration in the modern sense of the word. Percussion, however, revealed certain elementary structural changes as to the size of the heart or the content of the lungs. It informed the physician about the condition of the chest organs and at the same time about the seriousness of the disease, giving in this way directions for the treatment. And besides, percussion like every new diagnostic method, became a valuable instrument of clinical research, making anatomical observations on the living organism possible.

Percussion initiated a development in anatomical physical diagnostic that was to culminate in the application of the X-rays.

Auenbrugger was a good musician and the son of an innkeeper which explains a good deal. It could occur only to a man with a good ear that sound phenomena might be used in examining the chest. Another man would not have perceived the difference in sounds. It is not by accident that Laennec was a good musician also. And besides, in his father's inn Auenbrugger often saw people tapping barrels in order to find out whether they were full or empty. Everybody knew that a cavity had a different resonance according to whether it was filled with air or liquid. The chest was such a cavity, the lungs being filled with air normally, but with secretion under certain morbid conditions.

It sounds all very simple but it took Auenbrugger seven years to work out his method. A student of van Swieten, he was from 1751 to 1762 assistant physician, then physician at the Spanish Hospital in Vienna. For seven years he experimented on his patients, checking his observations in autopsies, experimenting on cadavers, filling the lungs with water. In 1761 he published his treatise in Latin under a rather cumbrous title (Fig. 2) which may be translated as "A new discovery in order, by percussion of the human thorax, to discover signs for the recognition of hidden diseases of the chest." A new edition was issued two years later.

In 1762 Auenbrugger resigned his position at the Spanish Hospital, owing to a dispute with his colleagues, and he lived from then on as a successful practitioner in Vienna. Besides his famous treatise he wrote several short monographs on various subjects.[2]

Percussion was not adopted immediately for the obvious reason that pathological anatomy was not advanced enough. The anatomical conception of disease was just beginning to crystallize. Auenbrugger was decidedly ahead of his time. Some physicians were greatly interested in the new discovery, like Haller who wrote a very sympathetic review of the book. A few like Ch. G. Ludwig in Leipzig were enthusiastic but the great majority was indifferent if not hostile. Among them was de Haen, the clinical director of the General Hospital in Vienna who was antagonistic to innovations.[3]

Half a century had to elapse before clinical medicine was ready to adopt percussion as one of its most valuable diagnostic methods. In 1808 the French clinician Corvisart translated Auenbrugger's

[2] Experimentum nascens de remedio specifico sub signo specifico in mania virorum. Vienna, 1776.

Von der stillen Wuth, oder dem Triebe zum Selbstmorde, als einer wirklichen Krankheit. Dessau, 1785.

Heilart einer epidemischen Ruhr in Jahre 1779, in: Jos. Mohrenheim's Wienerische Beyträge zur praktischen Arzneykunde, Wundarzneykunst und Geburtshilfe, Dessau and Leipzig, 1783, vol. II, pp. 48-52.

Besides he wrote the libretto to an opera of Salieri, Der Rauchfangkehrer oder die unentbehrlichen Verräter ihrer Herrschaften aus Eigennutz, Vienna 1781 and Berlin 1783.

[3] B. Noltenius, Zur Geschichte der Perkussion von ihrer Bekanntgabe durch Auenbrugger 1761 bis zu ihrer Wiederbelebung durch Corvisart 1808. Archiv für Geschichte der Medizin, 1908, vol. I, pp. 329-350, 403-428.

treatise into French, annotated it, commented upon it. The little booklet of 95 pages grew into a volume of 440 pages. Percussion developed in the French clinic and together with auscultation soon conquered the medical world.

The introduction of percussion into England was slow. William Cullen had heard of the method and he mentions it in his *First Lines of the Practice of Physic*, adding, however, that he had never practised it.[4] In 1821 the very versatile physician, John Forbes (1787-1861),[5] published an English translation of Laennec's work:

> A treatise on the diseases of the chest, in which they are described according to their anatomical characters, and their diagnosis established on a new principle by means of acoustick instruments. With plates. Translated from the French of R. T. H. Laennec, M. D., with a preface and notes by John Forbes, M. D., London: 1821.

It became a great success. Not less than five editions were issued from 1821 to 1838. But Laennec's book was long and the general practitioner could not be expected to read the whole of it. Forbes, therefore, decided to make an abstract of it. In 1824 he published:

> Original cases with dissections and observations illustrating the use of the stethoscope and percussion in the diagnosis of diseases of the chest; also commentaries on the same subjects selected and translated from Auenbrugger, Corvisart, Laennec and others. London: Printed for T. and G. Underwood, Fleet Street. 1824.

The book contained:

> On mediate auscultation: being a brief outline of the method of distinguishing diseases of the chest by means of the stetho-

[4] "How far the method proposed by Auenbrugger will apply to ascertain the presence of water and the quantity of it in the chest, I have not had occasion or opportunity to observe."—William Cullen, First lines of the practice of physic, vol. IV, Edinburgh 1784, p. 314.

[5] See Dictionary of National Biography.

scope; extracted from the original treatise of M. Laennec, published in MDCCCXIX.

And it also contained:

On percussion of the chest: being a translation of Auenbrugger's original treatise, entitled "Inventum novum ex percussione thoracis humani, ut signo, abstrusos interni pectoris morbos detegendi"; and of a selection of the more important commentaries of Corvisart on that work: the former first published in 1761, the latter in 1808.

This was the first and, as far as I can find, the only English translation of Auenbrugger's treatise.

In 1922 celebrating the two-hundredth anniversary of the birth of Auenbrugger, Max Neuburger published a facsimile of the original edition of the *Inventum Novum* together with reprints of the French translation of Corvisart, the English translation of Forbes and the German translation of Ungar, to which he added a brilliant biographical essay.[6]

Neuburger's book is a monument to Auenbrugger and will always be the standard work on the subject. However, it was printed in a limited number of copies and is not easily available to the medical student. This is the reason why we are reprinting Forbes' translation here.

The translation is slightly abbreviated. A few irrelevant Scholia were omitted, some were contracted. But the translation is good. We have left Corvisart's commentaries out. They were very important at the time, but what counts today and in this connection is Auenbrugger's text. It runs as follows:

[6] Leopold Auenbrugger's Inventum Novum, Faksimile nach der ersten Ausgabe, begleitet von der franz. Übersetzung Corvisart's, der engl. von Forbes, der deutschen von Ungar, herausgegeben und mit einer biographischen Skizze versehen von Max Neuburger. Wien und Leipzig, Verlag von Josef Šafář, 1922.

LEOPOLDI AUENBRUGGER

MEDICINÆ DOCTORIS
IN CÆSAREO REGIO NOSOCOMIO NATIONUM
HISPANICO MEDICI ORDINARII.

INVENTUM NOVUM

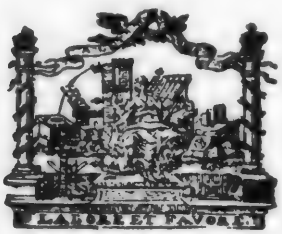
EX

PERCUSSIONE THORACIS HUMANI

UT SIGNO

ABSTRUSOS INTERNI PECTORIS MORBOS

DETEGENDI



VINDOBONÆ,

TYPIS JOANNIS THOMÆ TRATTNER, CÆS. REG. MAJEST. AULÆ TYPOGRAPHI.

MDCCLXI.

FIG. 2. Title page of the original edition.
From a copy in the Henry Barton Jacobs Collection.

ON PERCUSSION OF THE CHEST

BEING A TRANSLATION

OF

AUENBRUGGER'S ORIGINAL TREATISE

ENTITLED

"Inventum novum ex percussione thoracis humani, ut signo abstrusos interni pectoris morbos detegendi".

The Author's Preface

I here present the Reader with a new sign which I have discovered for detecting diseases of the chest. This consists in the Percussion of the human thorax, whereby, according to the character of the particular sounds thence elicited, an opinion is formed of the internal state of that cavity. In making public my discoveries respecting this matter, I have been actuated neither by an itch for writing, nor a fondness for speculation, but by the desire of submitting to my brethren the fruits of seven year's observation and reflexion. In doing so, I have not been unconscious of the dangers I must encounter; since it has always been the fate of those who have illustrated or improved the arts and sciences by their discoveries, to be beset by envy, malice, hatred, detraction and calumny.

This the common lot, I have chosen to undergo; but with the determination of refusing to every one who is actuated by such motives as these, all explanation of my doctrines. What I have written I have proved again and again, by the testimony of my own senses, and amid laborious and tedious exertions;—still guarding, on all occasions, against the seductive influence of self-love.

And here, lest any one should imagine that this new sign has been thoroughly investigated, even as far as regards the diseases noticed in my Treatise, I think it necessary candidly to confess, that there still remain many defects to be remedied—and which I expect will be remedied—by careful observation and experience. Perhaps, also, the same observation and experience may lead to the discovery of

other truths, in these or other diseases, of like value in the diagnosis, prognosis and cure of thoracic affections. Owing to this acknowledged imperfection, it will be seen, that, in my difficulties, I have had recourse to the Commentaries of the most illustrious Baron Van Swieten, as containing every thing which can be desired by the faithful observer of the nature; by which means I have not only avoided the vice of tedious and prolix writing, but have, at the same time possessed myself of the firmest basis whereon to raise, most securely and creditably, the rudiments of my discovery. In submitting this to the public, I doubt not that I shall be considered, by all those who can justly appreciate medical science, as having thereby rendered a grateful service to our art,—inasmuch as it must be allowed to throw no small degree of light upon the obscurer diseases of the chest, of which a more perfect knowledge has hitherto been much wanted.

In drawing up my little work I have omitted many things that were doubtful, and not sufficiently digested; to the due perfection of which it will be my endeavour henceforth to apply myself. To conclude, I have not been ambitious of ornament in my mode or style of writing, being contented if I shall be understood.

December 31, 1760.

FIRST OBSERVATION.

Of the natural sound of the Chest, and its character in different parts.

I.

The thorax of a healthy person sounds, when struck.

Scholium. I deem it unnecessary to give in this place, any description of the thorax. I think it sufficient to say, that by this term I mean that cavity bounded above by the neck and clavicles, and below by the diaphragm: in the sound state, the viscera it contains are fitted for their respective uses.

II.

The sound thus elicited (I.) from the healthy chest, resembles the stifled sound of a drum covered with a thick woollen cloth or other envelope.

III.

This sound is perceptible on different parts of the chest in the following manner:

1. On the right side anteriorly it is observed from the clavicle to the sixth true rib; laterally, from the axilla to the seventh rib; and posteriorly, from the scapula to the second and third false ribs.
2. The left side yields this sound from the clavicle to the fourth true rib, anteriorly; and on the back and laterally, in the same extent as the other side: over the space occupied by the heart the sound loses part of its usual clearness, and becomes dull.
3. The whole sternum yields as distinct a sound as the sides of the chest, except in the cardiac region where it is somewhat duller.
4. The same sound is perceptible over that part of the spinal column which contributes to form the chest.

Scholium. The sound is more distinct in the lean, and proportionably duller in the robust; in very fat persons it is almost lost. The most sonorous region is from the clavicle to the fourth rib anteriorly; lower down, the mammae and pectoral muscles deaden the sound. Sometimes, owing to the presence of muscle, the sound is dull beneath the axilla. In the scapular regions on the back, owing to the obstacle afforded by the bones and thick muscles there, it is also less distinct. Sometimes, but rarely, it exists over the third false rib—owing, I conceive, to a very unwonted length of the thoracic cavity.

SECOND OBSERVATION.

Of the method of Percussion.

IV.

The thorax ought to be struck, slowly and gently, with the points of the fingers, brought close together and at the same time extended.

Scholium. Robust and fat subjects require a stronger percussion; such, indeed, as to elicit a degree of sound equal to that produced, by a slight percussion, in a lean subject.

V.

During percussion the shirt is to be drawn tight over the chest, or the hand of the operator covered with a glove made of unpolished leather.

Scholium. If the naked chest is struck by the naked hand, the contact of the polished surfaces produces a kind of noise which alters or obscures the natural character of the sound.

VI.

During the application of percussion the patient is first to go on breathing in the natural manner, and then is to hold his breath after a full inspiration. The difference of sound during inspiration, expiration, and the retention of the breath, is important in fixing our diagnosis.

VII.

While undergoing percussion on the fore parts of the chest, the patient is to hold his head erect, and the shoulders are to be thrown back; in order that the chest may protrude, and the skin and muscles be drawn tight over it: a clear sound is thus obtained.

VIII.

While we are striking the lateral parts of the chest, the patient is to hold his arms across his head; as, thereby, the thoracic parietes are made more tense, and a clearer sound obtained.

IX.

When operating on the back, you are to cause the patient to bend forwards, and draw his shoulders towards the anterior parts of the chest, so as to render the dorsal region rounded; and for the same reasons, as stated in VIII.

Scholium. Any healthy person may make experience of percussion in his own person or that of other sound subjects; and will thus be convinced, from the variety of the sounds obtained, that this sign is not to be despised in forming a diagnosis.

THIRD OBSERVATION.

Of the preternatural or morbid sound of the Chest, and its general import.

X. And Scholium.

To be able justly to appreciate the value of the various sounds elicited from the chest in cases of disease, it is necessary to have learned by experience on many subjects, the modifications of sound, general or partial, produced by the habit of body, natural conformation as to the scapulae, mammae, the heart, the capacity of the thorax, the degree of fleshiness, fatness &c. &c.; inasmuch, as these various circumstances modify the sound very considerably.

XI.

If, then, a distinct sound, equal on both sides, and commensurate to the degree of percussion, is not obtained from the sonorous regions above mentioned, a morbid condition of some of the parts within the chest is indicated.

Scholium. On this truth a general rule is founded, and from this certain predictions can be deduced, as will be shown in order. For I have learned from much experience that diseases of the worst description may exist within the chest, unmarked by any symptoms, and undiscoverable by any other means than percussion alone.

A clear and equal sound elicited from both sides of the chest indicates that the air cells of the lungs are free, and uncompressed either by a solid or liquid body. (Exceptions to this rule will be mentioned in their place.)

XII. and XIII.

If a sonorous part of the chest, struck with the same intensity, yields a sound duller than natural, disease exists in that part.

XIV.

If a sonorous region of the chest appears, on percussion, entirely destitute of the natural sound—that is, if it yields only a sound like that of a fleshy limb when struck,—disease exists in that region.

Scholium. The nature of the indications above pointed out, will be understood by any one who attends to the difference of sound elicited by percussion of the chest, and of the thigh, in his own person.

XV.

The superficial extent of this unnatural sound (XIV.) in a sonorous region, is commensurate with the extent of the morbid affection.

XVI.

If a place, naturally sonorous, and now sounding only as a piece of flesh when struck, still retains the same sound (on percussion) when the breath is held after a deep inspiration,—we are to conclude that the disease extends deep into the cavity of the chest.

XVII.

If the same results (XVI.) are obtained both before and behind, on points precisely opposite, we are to conclude that the disease occupies the whole diameter of the chest.

Scholium. These varying results depend on the greater or less diminution of the volume of air usually contained in the thorax (lungs); and the cause which occasions this diminution, whether solid or liquid, produces analogous results to those obtained by striking a cask, for example, in different degrees of emptiness or fulness: the diminution of sound being proportioned to the diminution of the volume of air contained in it.

FOURTH OBSERVATION.

Of the diseases in general in which the morbid sound of the Chest is observed.

XVIII.

The preternatural or morbid sound occurs in acute and chronic diseases; it always accompanies a copious effusion of fluid in the thoracic cavity.

Scholium. It must be admitted that whatever diminishes the volume of air within the chest, diminishes the natural sound of that

cavity; but we know from the nature, the causes, and the effects, of acute and chronic diseases of the chest, that such a result is possible in these cases; and the fact is finally demonstrated by examinations after death. The effect of effused fluids in producing the morbid sound, is at once proved by the injection of water into the thorax of a dead body; in which case it will be found that the sound elicited by percussion, will be obscure over the portion of the cavity occupied by the injected liquid.

FIFTH OBSERVATION.

Of Acute diseases in which the chest yields the morbid sound.

XIX.

The morbid sound which is observed in acute diseases, occurs during their progress, or at their termination.

Scholium. This consideration ought to lead all medical men to use percussion in acute diseases; as they will thereby be enabled to form a more correct judgment, which in such cases is always a matter of difficulty. It has often occurred to me to see cases of acute diseases, apparently over, and imposing on the physician under the mask of intermittent or remittent fevers, and which have eventually ended in a fatal vomica or fatal scirrhus of the lungs.

XX.

The preternatural sound which is perceived during the course of acute diseases of the chest, occurs most frequently in inflammatory affections.

Scholium. The reason of this observation (XX.) will be obvious to any one acquainted with the nature of inflammation. The preternatural sound may also be observed sometimes in epidemic exanthematous diseases, previously to the eruption;—as was the case in the petechial epidemic of 1757, 1758, 1759, and in the miliary epidemic of the present year (1760). In the latter instance, I observed that the preternatural sound, when once present, continued to the termination of the eruption.

XXI.

The morbid sound which occurs towards the termination of acute diseases, is observed, when the excretion of morbid matter is not adequate to the severity of the affection.

XXII.

The morbid sound occurring in inflammatory diseases is commonly observable on the fourth day; it rarely precedes, but often follows this period.

Scholium. This sign occurs rarely on the third, and very often on the fourth, fifth, and seventh day—but never later. It is observed in those inflammatory affections of the pleura or lungs, or both, which are accompanied by a humid cough; but not in those attended by a dry cough,—such (e. g.) as the dry pleurisy, and inflammation of the mediastinum, pericardium, and heart. At least in these latter affections, the sound is not observed, until such time as they verge towards a fatal termination, or have degenerated into obvious abscesses or vomicae.

XXIII.

The morbid sound increases, from the time of its appearance, according to the nature, severity, and duration of the disease; it diminishes proportionably to the nature, duration, and copiousness of the excretions.

Scholium. The progressive augmentation of the preternatural sound depends on the gradual deposition of the morbific matter, which I have often found in such quantity as to occupy the inferior two-thirds of the affected side.

XXIV.

The disease in which the preternatural sound is once present, either proves fatal [on a decretory day, reckoning from its origin]; passes off with due excretion; or terminates in other affections.

XXV.

The following corollaries are the result of my observation of inflammatory diseases of the chest, studied under the sign of morbid resonance:

1. The duller the sound, and the more nearly approaching that of a fleshy limb stricken, the more severe is the disease.

2. The more extensive the space over which the morbid sound is perceived, the more certain is the danger from the disease.

3. The disease is more dangerous on the left than on the right side.

4. The existence of the morbid sound on the superior and anterior part of the chest (i. e. from the clavicle to the fourth rib) indicates less danger, than on the inferior parts of the chest.

5. The want of the natural sound behind, indicates more danger than it does on the anterior and superior part of the chest.

6. The total destitution of sound over one whole side, is generally (passim) a fatal sign.

7. The absence of sound along the course of the sternum is a fatal sign.

8. The entire absence of the natural sound over a large space in the region of the hearth, is a fatal sign.

Scholium. I have sometimes observed that the fatal prognostics given in the corollaries 6 and 7, were not verified when the matter made its way outwards, or abscesses formed in parts less essential to life. And this natural process has been often happily imitaded by the ancients, by cauterising or otherwise incising, the affected parts.

SIXTH OBSERVATION.

Of Chronic Diseases in which the preternatural sound is observed.

XXVI.

The preternatural sound observed in chronic diseases is owing either to—(I.) some hidden condition of the organs, which disorders them with a slow progress and finally destroys them; or exists (2.) when certain obvious causes have induced a slow disorganization of the same.

Scholium. These are the general sources of chronic diseases of the chest; and from whichever of the two classes of causes these arise; the morbid sound will equally and always be present.

XXVII.

The diseases of the first class are, 1. those which depend on hereditary predisposition; 2. those which arise from affections of the mind, particularly ungratified desires, the principal of which is Nostalgia; 3. those which affect certain artisans, naturally possessing weak lungs.

Scholium. 1. The influence of an hereditary taint in producing diseases we know by experience, though we cannot explain it.—See Van Swieten.

2. Mental affections, we find, produce quite opposite effects, while acting as causes of pectoral diseases. Of these affections of the mind I have observed none more powerful in rendering obscure the natural resonance of the chest, than the destruction of cherished hopes. And as among this class of diseases, Nostalgia (commonly called heimwehe —home ail) occupies the first place, I shall here give a short history of it.

When young men, not yet arrived at their full growth, are forcibly impressed into the military service, and thereby at once lose all hope of returning safe and sound to their beloved home and country, they become sad, silent, listless, solitary, musing and full of sighs and moans, and finally quite regardless of, and indifferent to, all the cares and duties of life. From this state of mental disorder nothing can rouse them,—neither argument, nor promises, nor the dread of punishment; and the body gradually pines and wastes away, under the pressure of ungratified desires, and with the preternatural sound of one side of the chest. This is the disease Nostalgia. I have examined the bodies of many youths who have fallen victims to it, and have uniformly found the lungs firmly united to the pleura, and the lobes on that side where the obscure sound had existed, callous, indurated, and more or less purulent. Some years ago, this disease was very common, but is now rarely met with, since the wise arrangement has been adopted of limiting the period to military service to a certain number of years only.

3. The various arts and occupations of life have their peculiar diseases, in like manner as the ages, temperaments, and sexes have

theirs. This truth is exemplified in the case of the man of letters, the husbandman, the workers in metals, painters, &c. &c. Our particular business, however, at present, is with those arts which dispose to diseases of the chest indicated by the sound so often described. Thus I have remarked that Tailors, Millers, &c. who are forced to inhale, during their labours, a fine dust, become phthisical; while shoemakers, weavers, &c. from the forced position or application of their weak chests, during their various occupations, become asthmatical, with scirrhous lungs, &c.

I may here state a fact which I have frequently proved by dissection, but which I cannot well account for—it is this: in the abovementioned class of cases it is extremely rare to find both lungs affected at the same time; and, when this happens, one lung is always more diseased than the other.

XXVIII.

The diseases mentioned (in XXVI. 2.) arise either from (1.) a vitiated condition of the fluids, gradually produced; or (2.) from acute affections imperfectly cured.

Scholium. 1. The vitiation of the humours arises from ingesta which cannot be assimilated, the effect of which in producing chronic diseases is well known.

2. An acute disease is said to be imperfectly cured when some morbid affection still remains after it, in some part of the body. This morbid condition will be observed either in the site of the primary disease, or, at least, in that portion of the chest, which yields the morbid sound;—namely, the pleura, or lungs, or both these together, or the mediastinum or pericardium. When the primary inflammatory disease is succeeded by a collection of pus in the chest, the affection is readily recognized; but if the secondary affection is a scirrhus of the lung, how often and how grievously are medical men thereby deceived! Often have I met with cases of fancied convalescence from acute fevers, in which there was hardly any cough or dyspnoea, or indeed any other sign of disease (as appeared to the attendants) but a trifling degree of irregular fever. In these cases, however, on percussion the preternatural sound was found over one whole side of

the chest, and the final result was death, preceded either by dropsy or extreme emaciation; the real seat of the disease remaining, perhaps, unknown to the very last!

XXIX.

For the above reasons, it may be received as a general rule in chronic diseases, that when, together with the indication stated XXVI., there are emaciation and debility,—the case is desperate.

Scholium. This result is inevitable whensoever the disease does not yield to medicine. In such cases we may always conclude, that the lung of the side which yields the preternatural sound, is either compressed by some foreign body, is indurated by disease, or destroyed by some morbid acrimony developed within its own structure.

SEVENTH OBSERVATION.

Of the preternatural sound of the chest which results from copious extravasation of the fluids contained in the vessels of that cavity.

XXX.

The fluids contained in the vessel of the chest are: 1. Chyle; 2. Blood; 3. Serum and Lymph.

Scholium. I must candidly admit that I have never seen a case of extravasated chyle. I however believe the thing possible, although I am well aware that the thoracic duct runs outside the pleura: the same causes that produce erosion and perforation of the thoracic parietes, may produce this.

XXXI.

The extravasation of these fluids (XXX.) may arise from the following causes: 1. rupture of the containing vessels; 2. too great tenuity of the contained fluids; 3. nonabsorption of the same &c. &c.

Scholium. 1. Under this head come wounds, contusions, &c.

2. Extravasations from internal causes arise from rupture of relaxed and debilitated vessels, during a state of plethora and overactivity of the circulation.

3. A third class of causes are obstructions originating in a bad habit of body.

XXXII.

When from these causes the fluids mentioned are poured out in considerable quantity, the preternatural sound will exist over the space occupied by them.

Scholium. The correctness of this statement is evinced by the experiment mentioned at the end of the scholium of XVII.

According to the plan formerly proposed (XI.) I shall now proceed to notice those affections of the chest which are not indicated by percussion.

EIGHTH OBSERVATION.

Of those affections of the chest which are not indicated by percussion.

XXXIII.

Certain diseases attended by a violent cough, and thereby creating a suspicion that the lungs are certainly implicated, are nevertheless truly diseases of the abdomen, and affect the pulmonary organs merely sympathetically.

Scholium. Under this head are ranged the gastric and convulsive coughs of infants, pregnant women, and such other persons as have their abdominal viscera oppressed by the lentor of autumnal agues, or a superfluity of phlegm.

XXXIV.

Violent coughs, dyspnoeas, asthmas and consumptions, are also occasionally observed, which originate in some incomprehensible irritability of the nerves of the chest.

Affections of this sort rarely give rise to the preternatural sound: from the absence of this, however, and the presence of a copious watery urine, their existence may be pretty confidently presumed.

Scholium. Under this head are ranged the coughs, dyspnoeas, and asthmas so common in hysterical and hypochondriacal affections; the nervous consumption and asthma of old persons; and, perhaps we may add the polypous concretions found near the heart in young subjects.

XXXV.

A slight engorgement of the lung, a scirrhus of small extent, a small vomica, and a trifling extravasation, are not detected by percussion,—unless, sometimes, by the decreased resonance of the affected part.

Scholium. These affections are not dangerous until they reach a size when they become more readily discoverable by means of percussion.

XXXVI.

There is another class of diseases of the lungs [undiscoverable by percussion] in which the distinguishing symptoms are a very severe cough, with expectoration of fatty, chalky, gypseous and stony matters.

Scholium. These cases are known by the nature of the expectoration. I have frequently observed a cough of this kind (but without the peculiar expectoration) succeeding miliary fevers improperly treated.

NINTH OBSERVATION.

Of the appearances on dissection, in cases where the preternatural sound of the chest had been observed.

XXXVII.

These are the following:

1. Scirrhus of the lungs;
2. The conversion of this into an ichorous vomica;
3. A purulent vomica (simple or ruptured) in the pleura, lungs, mediastinum or pericardium.
4. Empyema;
5. Dropsy of the chest, in one or both cavities;
6. Dropsy of the pericardium;
7. Extensive extravasation of blood in the cavity of the pleura or pericardium;
8. Aneurism of the heart.

Scholium. I will now proceed to notice these diseases in order, premising, occasionally, some account of the general symptoms.

TENTH OBSERVATION.

Of scirrhus of the lungs, and its symptoms.

XXXVIII.

By scirrhus of the lungs I mean the degeneration of the natural spongy substance of the organ into an indolent fleshy mass.

Scholium. A portion of sound lung swims in water, but this carniform degeneration sinks. There is often observed a vast difference in the character of these scirrhi, in respect of hardness, colour, and component parts. Thus, in inflammatory diseases of the chest proving fatal on the fifth, seventh, or ninth day, the lung is very often found so completely gorged with blood, as to resemble liver in every respect, both as to colour and consistence. One appearance deserves to be noticed: the lung is frequently invested with a purulent adventitious membrane, in those instances wherein the fatal peripneumony has succeeded an acute pleurisy. In chronic diseases of the lungs the appearances are extremely various. Frequently they are interspersed and as it were marbled with a fatty kind of matter; frequently along with the fleshy appearance, they have the consistence of cartilage; and very often they are found indurated by means of a thickened and black blood. These varieties, doubtless, depend on varieties of the morbific matter.

XXXIX.

The presence of scirrhus of the lungs, in its primary unsoftened condition, may be suspected from the following signs:

Together with the diminution or entire loss of the natural sound over the affected part, there is an infrequent cough without any expectoration, or with only a scanty excretion of viscid and crude sputa. During a state of quiescence there is nothing to be observed much amiss, either in the condition of the pulse or respiration; but upon any considerable bodily motion, or after speaking for some time, these persons become speedily exhausted, anxious, and breathless, and complain of a sense of dryness and roughness in the throat. At the same time the pulse, which had previously been of moderate fre-

quency, becomes quick and unequal; the respiration and speech are broken and interrupted by sighs; the temporal, sublingual, and jugular veins of the affected side, are more than usually distended; while it will be observed that this side of the chest is less moveable than the other, during inspiration. Meanwhile the natural and animal functions continue to be well performed; and the patient can lie on either side indifferently.

All the above symptoms are more severe in proportion as the scirrhus is more extensive.

ELEVENTH OBSERVATION.

Of Vomicae in general.

XL.

When an humour, sound or morbid, is deposited from the circulating mass in a solid form, and (together with the extreme vessels) is afterwards, by means of the vital powers softened and converted into matter, and contained in a sort of capsule, I term this collection of matter a Vomica.

Scholium. This notion applies to every vomica, whether produced by a vice of the solids or fluids, as is clear from the history of obstruction and inflammation.

XLI.

I have observed two kinds of Vomica—the Ichorous and Purulent. The former occupies the lungs only; the latter, both the lungs and other thoracic viscera. They are both either close, or communicating with the Trachaea.

Scholium. By the term Ichorous Vomica, I mean a sac containing a thin fluid frequently of a reddish yellow colour, frequently of a reddish brown, often of a colour between these, different from pus, and arising from the destruction of a scirrhus lung. By Purulent Vomica, I understand an encysted abscess of the chest, resulting from the conversion of an inflamed spot into a white, thick, glutinous, fatty matter. When these communicate with the Bronchia and discharge any of their contents by expectoration, they are called open; otherwise, close or shut.

XLII.

1. Ichorous Vomica. If a scirrhus of the lung, recognized by its proper signs (XXXIX.) is converted into matter, it presents the following symptoms: The patient begins to languish and waste away insensibly (although the usual quantity of food is taken), with a quick, contracted, and unequal pulse. The respiration, even during a state of quietude is unnaturally anxious and frequent; and is remarkably interrupted by sighing. The forehead, during the more severe attacks, is sometimes covered with a cold sweat. The eyes are dim; the veins of the cheeks and lips are livid, and the tongue, especially on the affected side, is of a leaden hue. At the same time there is neither pain nor thirst. The diseased side, however, is observed to be less mobile than natural, and the degree of immobility is proportioned to the bulk of the vomica into which the scirrhus has been resolved. The cough is infrequent, interrupted, and dry; or the expectoration, if any, is dirty or blackish (coenosum aut fuscum).

When things have got to this height, the appetite begins to fail, and at length is entirely lost; and whatever is eaten only produces an increase of anxiety during the process of digestion: this process, however, takes place without any hectic flushing, which always accompanies the purulent vomica.

In some cases, when there is a dissolution of the central parts of the scirrhus, the abdomen and hypochondres sink in; in a very few instances, the same parts are slightly swollen, and with an indistinct feeling of fluctuation. The urine rarely presents any deviation from the natural state; sometimes, however, it is red, and with a sediment (if any exists) of a cinnabar colour. The stools are of natural character, except under the influence of medicine. The extremities, even when of a livid colour, are never hotter than natural, until a few days before death; the affected side is, moreover, observed to swell, and the hand and foot in the first place. The patient now suffers from frequent sinkings and faintings; and from having hitherto been able to lie easily on either side, he is able to remain on the affected side only.

2. Close Purulent Vomica. The following are the symptoms of this affection: While the abdominal organs still continue to perform

their functions well, there is often present a very troublesome, frequent, dry cough, so severe as to irritate the fauces, to render the voice hoarse, and often to excite vomiting. At this time are observed frequent irregular chills, followed by heat, and strong flushing of the cheeks and lips, particularly of the affected side. A degree of lassitude is experienced, more remarkable after a full meal; and at the same time there is perceived a degree of quickness and straitness of the respiration, sufficient to excite suspicion of some morbid affection of the chest. The pulse is also found to be contracted, frequent somewhat hard and unequal during the period of digestion; and even at other times it is never in a perfectly natural state,—more especially, under the influence of bodily motion, laughing, or speaking.

If at this time the Vomica has reached a size to be detected by percussion, the following additional signs exist: The patient is not nourished by the food taken, partly because it is, in a greater or less degree, rejected by vomiting, and partly on account of the imperfect assimilation of what is retained. As the disease increases, the whole process of respiration is at length carried on by one lung; an incessant state of anxiety prevails, and the patient remains fixed on the diseased side, through dread of impending suffocation if he turn on the other. The face, hands, feet, and the affected side are oedematous; while the opposite part of the body, from deficient assimilation, hectic heat, and nocturnal perspirations, is extenuated. The urine now becomes scanty, red, turbid, with a copious branny sediment, and soon putrefies; and the scene is finally closed, with short and asthmatic breathlessness, lividity of the cheeks, lips, and nails, &c.

3. Purulent Vomica communicating with the Trachea. When a Vomica of considerable size, discoverable by percussion, bursts into the Trachea, or rather Bronchia, by a large opening, it produces instant suffocation; if, by a a small aperture, it is recognized by the following marks: By means of a violent cough, pus is expectorated, which is, in different cases, white, yellow, saffron, green, brown, bloody; which sinks in water, and, when thrown on hot coals, emits a stinking nidorous smell. If at this time, while the patient is coughing and spitting, the palm of the hand be placed over the site of the vomica, i. e. over the place where its existence had been detected by

percussion,—the noise of fluid within the chest will be sufficiently manifest. This kind of expectoration will cease for some days, with relief to the patient; but it speedily returns, and is always preceded, for four and twenty hours, by an increase of the febrile state. During this state of things, and before the return of the expectoration, if percussion is applied over the site of the vomica a sound exactly like that from a fleshy limb is obtained; but if this is delayed until the evacuation of the accumulated pus, then there is perceived a distinct, though obtuse sound. The slow fever which invariably accompanies this condition, is encreased after eating, and is still higher during the night; and at these times, the forehead, neck, and chest, are covered with perspiration. With the increase of these symptoms, and the continuation of the purulent expectoration, the breath becomes tainted, insomuch as to be extremely disagreeable both to the patient and the attendants. The thirst continues great, but the appetite is lost, even for the greatest delicacies, which, however sparingly taken, produce, in place of refreshment, langour and anxiety. (The case is very different with them whose sputa are inodorous, the appetite in many being even great.) The urine is uniformly frothy, grows speedily putrid, and deposits a viscid, tenacious, white sediment. The patient now daily grows more emaciated: the bones almost pierce the skin,—the hair falls off,—the nails become curved,—the legs swell; at length a colliquative diarrhaea supervening first lessens, and then suppresses the expectoration, and the sufferer finally dies suddenly, on the third day after that on which he began to remain obstinately fixed on his back, with his legs drawn under him.

XLIII.

Empyema. When a vomica (XXXVII.), ascertained by percussion, discharges its contents into the cavity of the pleura, and upon the diaphragm, Empyema is produced.

Scholium. I premise this definition to prevent the affection now in question from being confounded with a vomica that has discharged its contents into the trachaea.

XLIV.

If a large vomica, whose superficial and central extent is supposed

to have been recognized by the marks pointed out (Obs. Third. XV., XVI., XVII.), shall have burst as above mentioned (XLIII.), it may be recognized by the following signs:

The patient who had usually lain on the affected side, starts up with a sudden pain (as if nearly suffocated), and begs to be held in the erect posture.

If percussion is now applied, it will be found that the natural sound, which had been nearly lost in the site of the vomica, has in some degree been restored in that place; while it is more or less destroyed (according to the quantity of pus effused) over the posterior and inferior parts of the chest.

There is now a very frequent cough, which is either dry, or with a scanty, frothy and noisy expectoration. The respiration becomes very laborious, with frequent faintings, and a cold sweat bedews the forehead and throat; the cheeks and lips are of an ominous red, while the nails grow livid, the pupils dilate, and death (which follows in a few hours the rupture of a large vomica) is finally preceded by dimness of sight, &c.

A small vomica, ruptured in the same manner, produces the same symptoms, and is equally fatal. This issue, however, is of later occurrence, and is preceded by the marks of pleuro-peripneumony.

TWELFTH OBSERVATION.

Of Dropsy of the Chest.

XLV.

When water is collected in the cavity of the chest, between the pleura (costalis) and the lungs, the disease is called dropsy of the chest; and this is said to be of two kinds, namely, according as the fluid occupies one, or both sides.

Scholium. This is ascertained by percussion in the living subject; and is demonstrated by anatomical examination after death. The general symptoms of this disease are chiefly the following:

1. Difficult and laborious respiration;
2. A cough at intervals, which is dry, or only attended by sputa of a thin watery nature, or occasionally somewhat viscid;

3. A pulse contracted, somewhat hard, frequent, unequal and often intermitting;

4. A sense of breathlessness and suffocation on the slightest motion;

5. An incipient dislike of warm food;

6. Perpetual anxiety about the scrobiculus cordis;

7. Great pressure on the chest, and distension of the stomach during the period of digestion;

8. A murmuring noise about the hypochondres, and frequent eructation of flatus, with momentary relief;

9. Scarcely any thirst;

10. Urine very scanty, and rarely made, red, with a lateritious sediment;

11. Swelling of the abdomen, more especially in the Epigastrium, and particularly in that point on which the incumbent water gravitates;

12. A sublivid swelling of the extremities, especially of the feet, which are moreover cold to the touch;

13. Oedematous tumescence of the inferior palpebrae;

14. A pallid, or, according to the nature of the affection, a sublivid discoloration of the cheeks, lips, and tongue;

15. Inability to lie down; anxious distressing nights, with heaviness, yet frequently sleepless.

All these symptoms vary in a wonderful manner according to the disease.

First Kind.—Dropsy of one side of the Chest. Beside the general signs of this disease above enumerated, the affected side, if completely filled with water, is enfeebled (effoeminatum), and appears less moveable during inspiration. In this case, also, the affected side yields no where the natural sound on percussion. If the chest is only half-filled, a louder sound will be obtained over the parts to which the fluid does not extend; and, in this case, the resonance will be found to vary according to the position of the patient, and the consequent level which the liquid attains. The Hypochondre of the affected side is also unusually tumid, and more resisting to pressure than the rest of the abdomen. The palpebra, hand, and foot

of the affected side are slightly oedematous. It is a remarkable fact, that the reclining posture (decubitus declivis) is easily borne when the chest is entirely full; while the contrary is the case, when there remains space for the fluctuation of the water.

Second Kind.—Dropsy of both sides of the Chest. If fluid is contained in both sides of the chest, the following specific signs, in addition to the general symptoms, exist: The natural sound is destroyed over the space occupied by the water in either side. The patients uniformly become asthmatic; and resemble, in many respects, those labouring under Ascites, only that the former have their inferior palpebrae and hands swollen. They cannot lie in an horizontal posture, and are equally threatened with suffocation on whichever side they turn; on which account, they are forced to remain sitting, day and night, to prevent the pressure of the fluid from being felt on the upper parts of the chest (which would be the case on lying down), in the same degree on which it now gravitates on the abdomen. The effect of this state of things might lead to the suspicion of Ascites, only that we find, on examining the patient in the erect position, that the hypochondriac regions are more swollen than the inferior parts, which is not the case in Ascites.

All these subjects die as if from peripneumony, that is to say,—the pulse fails, the whole body, except the chest and head, grows cold, the cheeks and extremities become livid, the respiration is at first laborious, then interrupted, and finally ceases altogether.

XLVI.

Dropsy of the Pericardium. When the liquor pericardii is morbidly increased, so as to be capable of disturbing the natural action of the heart, the disease is called Dropsy of the Pericardium: of this there are two species, as the fluid is purulent or serous.

Scholium. The fluid naturally present in the pericardium accumulates in still greater quantity in those who suffer a long protracted mortal agony, as we find on examination after their death. But it is not to this accumulation, originating in the relaxation of death, but to that produced by obstruction during life, that I apply the term dropsy. I have ventured to divide the affection into two species, be-

cause I have often witnessed both of them. In the first variety, the heart is rough, and as it were shagged, with a coating of the purulent matter; while in the latter, the organ is only of a paler colour than natural. Many may be of opinion that the purulent dropsy would be better classed under the head of Empyema; but I shall never quarrel about words, when there are appearances to instruct us.

Signs of Hydropericardium. Almost all the symptoms which have already been enumerated as accompanying dropsy of the chest generally, accompany this species also: in addition to these, however, I have observed the following specific signs of the dropsy of the pericardium:—

The sound in the cardiac region, which I have already stated (III. 2. 3.) to be naturally more obscure than in the other parts of the chest; is now as completely deadened as if the percussion were applied to a fleshy limb. A swelling is perceived in the praecordia, which can readily be distinguished, by its superior resistance, from the stomach distended by flatus.

The patients fall asleep, while sitting, the body being inclined forwards; but they soon are roused by the unconscious dropping of the head. On this account, they complain to all around them of the distressing propensity to sleep which they experience. At the same time they suffer from faintings (accompanied by a pulse frequently unequal in respect both of its rythm and volume), and, indeed continue to undergo to the end of their wretched life, and in every position of body, the greatest distress. A few days before death, in many cases, the neck is swollen, and the eyes become extremely red, as if from crying. This state of things is sometimes terminated suddenly by a stroke of apoplexy, or more slowly by leipothymia.

The same signs are furnished by percussion in the purulent, as in the proper dropsy of the pericardium; but in the former, the other symptoms are precisely the same as those which exist in the close purulent vomica. In the purulent dropsy, the fluid commonly resembles turbid whey,—the thicker portions of it (quod purulentum est) being found adhering to the heart like fringes.

THIRTEENTH OBSERVATION.

Of the symptoms of a copious extravasation of Blood.

XLVII.

The causes of a large extravasation of blood into the cavity of the chest have been noticed in the Scholium of XXXI. The following are the symptoms of this affection.

Scholium. There is incessant and indiscribable anxiety and oppression at the praecordia and on the chest, while there is constant jactitation of the body, and complete intolerance of the horizontal posture. Percussion elicits none of the natural sound over the space occupied by the extravasated blood. In all cases the pulse is extremely contracted, frequent, and irregular in every way. The respiration is extremely laborious, with a frequent cough, and broken by profound sighing. All the veins become flaccid, and the eyes are at first red but ultimately pale. Cold sweats &c. follow, and the patient dies stertorous.

These are the symptoms when the blood flows into the cavity of the pleura without any accompanying lesion of the lungs: when these are wounded, there is also bloody expectoration, and a passage of air to and from the wound in the parietes of the chest.

FOURTEENTH OBSERVATION.

Of Aneurism of the Heart.

XLVIII.

When the heart becomes so much distended by blood, accumulated in its auricles and ventricles, as to be unequal to propel forward its contents, it frequently becomes thereby enormously dilated. This dilatation has been called Aneurism of the Heart.

Scholium. We frequently observe this state of the heart on dissection, (1.) in sudden and extensive peripneumonies of both lobes at the same time, and (2.) in those fatal inflammatory diseases which are noticed towards the end of the Scholium on XXII.

The pathognomonic sign of this affection is the complete fleshy

sound on percussion existing over a considerable space in the region of the heart. Whenever this sound is perceptible in the acute peripneumony it is a sign that the patient will not survive twenty-four hours: in fact, he is already at the last gasp, and is speedily carried off as in apoplexy, unconscious of his fate.

In the second class of inflammations, the sign is equally fatal, but is attended by different symptoms. In this case, the patients suffer dreadfull anxiety, and by the constant jactitation of their limbs, are perpetually uncovering themselves. Older persons, indeed bear more tranquilly their sufferings; but the younger are pertinaciously restless and violent, struggling and talking, attempting to get out of bed, demanding their clothes, and endeavouring to walk or go about their usual occupations. Meanwhile the eyes become dull, the cheeks livid, and the nails and extremities are tinged with a leaden hue, and death is ushered in by cold sweats, and the gradual extinction of the pulse and respiration.

Cedant haec miseris in solatium, veris autem medicinae cultoribus in incrementum artis: Quod opto!

ÁGUA DE INGLATERRA

AUGUSTO D'ESAGUY

The following notes on *Água de Inglaterra* were written by Dr. Jacob de Castro Sarmento, a native of Braganza (1691), Master of Arts of the University of Évora, 1710, Doctor in Medicine of Coimbra University, February 18th, 1717.

> " At the same time, a strong infusion of the same bark (Quina-quina) was introduced under the name of *Água de Inglaterra*, and, with it, Dr. Fernando Mendes obtained a greater success even, for he received a handsome gift from His Serene Highness King Pedro, on condition that he should reveal to him the secret of its composition, and withhold it from the public.
>
> " And as Quina-quina was not well-known, and some dared not mention it, and as, at the same time, many were cured by *Água de Inglaterra* without knowing its composition, the inventor achieved great fame and won the good opinion even of those who were opposed to Quina-quina."

The mixture, prepared by Fernando or Moisés Mendes, April 14th, 1681, was short-lived. João Lopes Cardoso Machado, health officer at Pernambuco (Brazil), in his *Apologia da Água de Inglaterra, da Real Fábrica*, 1812, describes the appearance of *Água de Inglaterra,* and mentions its first concocter, Fernando Mendes (Gazeta de Lisboa, 14-1-1720):

> " Fernão Mendes made his appearance in Portugal with a mixture which did not enjoy popularity for very long, either because its results did not correspond to expectations, or on account of the sudden death of its inventor.
>
> " Fernão Mendes was succeeded by Dr. Jacob de Castro Sarmento, a physician practising in England, who seems to have been more successful in developing the principles of Quina, or to have chosen a more appropriate formula, for his *Água* achieved great popularity, both in England and in Portugal. The memory of the profits he made by the sale of

his bottles, caused the sudden appearance of many formulae of febrifugal water by different authors; unluckily, however, these did not find public favour, and were a source of great disappointment to their inventors."

Another would-be inventor of *Água de Inglaterra* was Father Alexander Botelho, who claimed to have inherited a prescription from Fernando or Moisés Mendes. We find a long list of counterfeiters, headed by the nephews of Castro Sarmento.

It was natural that in a country, infested at the time by malaria and fevers, the curiosity of forgers should have been awakened by this fever-abating water, obtained by the infusion or maceration of Quina-quina bark, the healing properties of which, had already been proclaimed by the Cardinal of Lugo in the year 1650, after witnessing its beneficial effects on the natives of Peru.

In his Will, witnessed by the Countess of Middlesex, Edward Wortley Montague, member of Parliament, and John Priderving, Master of Arts, Castro Sarmento, who was one of the most distinguished pharmacologists of his time, bequeathed the formula for *Água de Inglaterra* to his wife and son, Henrique, both living in London. It is interesting to note here that Castro Sarmento had been the intimate friend of the Marquis of Pombal, Portuguese Ambassador to London, later Prime Minister and Reformer in Portugal, and a great protector of the Jews.

The first counterfeiter was a nephew, Captain André Lopes de Castro, who, after a brief stay with his uncle in London, was sent back to Portugal on account of his disgraceful behaviour, and the scant attention he devoted to the study and practice of Medicine.

Another was the latter's son, José Joaquim de Castro, a Knight Commander of the Order of Christ, and owner of the *Real Fábrica*, whose claims provoked a violent discussion in a meeting of the Portuguese Parliament (May 14th, 1821).

Other famous forgers were:

António José de Sousa Pinto, a Lisbon Chemist, 1809,
José Francisco Borralho, chemist to the King, 1794,
José Cardoso Rodrigues Crespo, a chemist in Praça do Rossio, 1788,

João António Pereira e Sousa, a chemist in rua da Boa Vista, 1798,

without mentioning Ana Maria de Brito, who, in 1720, sold the mixture in rua Nova.

In the *Livros da Intendência Geral da Policia* (Torre do Tombo Library), we find several notes on *Água de Inglaterra* and its counterfeiters: Bk. III p. 258, Bk XI p. 81, Bk. XIII p. 4, Bk. XIV p. 195; which clearly show the profits made in connection with the preparation and sale of *Água de Inglaterra.*

In his *Medicina Doméstica* or *Tratado de Prevenir e Curar Enfermidades,* 1825, Manuel Joaquim Henrique de Paiva says: "The Portuguese Nation is greatly indebted to Doctor Sarmento." Henrique de Paiva was one of the greatest medical men of his time, and had a wide experience of healing.

Reference to *Água de Inglaterra* can be found in all Pharmacopoeiae published between the years 1681 and 1821, and there is no doubt that this famous mixture, invented by two Portuguese Jewish doctors, Fernando Mendes and Jacob de Castro Sarmento, was the most widely prescribed drug of its time.

DIRECÇÕES
PARA O USO
DA
AGUA DE INGLATERRA,
INVENTADA PELO DOUTOR
JACOB DE CASTRO SARMENTO,
Membro do Real Collegio dos Medicos de Londres, e Socio da Sociedade Real:

Hoje preparada nesta Corte, com geral acceitação,

POR

ANDRÉ LOPES DE CASTRO,

E APPROVADA PELA REAL JUNTA DO PROTO-MEDICATO.

LISBOA. MDCCXCIV.

NA OF. DE SIMÃO THADDEO FERREIRA.

Com Licença da Real Meza da Commissão Geral sobre o Exame, e Censura dos Livros.

AVISO AO PUBLICO
A RESPEITO
DA
AGOA DE INGLATERA
DA
COMPOSIÇÃO DO DOUTOR
JACOB DE CASTRO SARMENTO,
Fabricada nesta Corte ha mais de trinta annos com publica, e innegavel acceitação
POR
ANDRE' LOPES DE CASTRO.

LISBOA. 1799.

NA OFFIC. DE SIMÃO THADDEO FERREIRA.

Com Licença da Mesa do Desembargo do Paço.

COMMITTEE FOR THE STUDY OF SUICIDE

An organization to be known as the *Committee for the Study of Suicide, Inc.* was incorporated last December under the laws of the State of New York and began its activities early in January. The Committee may in time increase its present membership of ten to a total number of twenty. The Board of Directors and the officers of the new corporation are:

Dr. Gerald R. Jameison, President
Mr. Marshall Field, Vice-President
Dr. Henry Alsop Riley, Treasurer
Dr. Gregory Zilboorg, Secretary and Director of Research
Miss Elisabeth G. Brockett
Dr. Franklin G. Ebaugh
Dr. Herman Nunberg
Dr. Dudley D. Shoenfeld
Dr. Bettina Warburg

The Committee plans to undertake a comprehensive study of suicide as a social and psychological phenomenon. To achieve this the following general outline was adopted.

1. *Intramural studies* of individuals inclined to suicide in selected hospitals for mental diseases. These will embrace constitutional, neurological, psychiatric and psychoanalytic investigations of the phenomenon with special reference to therapy and prevention. This part of the study will include the investigation of suicidal trends or ideas of death emerging in organic deliria.

2. *Extramural studies* of ambulatory cases afflicted with suicidal trends or with obsessional wishes for their own death. These studies will be primarily therapeutic in nature, the cases to be treated in especially selected out patient clinics and by qualified psychiatrists and psychoanalysts. Regular "control seminars" to follow and to supervise the course of the cases under treatment will be held under the guidance of the Committee. The medical and neurological status of all cases will be a prerequisite of each case record.

3. *Social studies* of suicide will be undertaken along the following general lines. Various attempts at suicide will be followed up by experienced psychiatric social workers; all cases will be studied from the standpoint of social background and history and those who failed in their attempts or have recovered from injuries following a partially successful attempt (prolonged unconsciousness or physical illness) will be urged to submit to psychiatric and psychoanalytic treatment in the hands of the intra- or extramural therapeutic agencies which will be available to the Committee.

4. *Ethnological studies*, i. e. comprehensive investigation of suicide among primitive races, will be one of the first concerns of the Committee, for suicide is a rather frequent occurrence among many primitive races still extant and when studied may throw some light on suicide as a psycho-biological phenomenon. It is planned that an expedition headed by a psychiatrically schooled anthropologist, a psychiatrist and a psychoanalyst should work for a time in a region such as the Melanesian Islands or the Gulf of Papua, and in the interior of the Mexican North West as well as among some of the North American Indian tribes. Further details of this plan will be elaborated.

5. *Historical studies* of suicide will be pursued systematically under the auspices of the Committee, so as to make available a scientific history of the phenomenon as a social and medico-psychological problem.

The Committee was organized under the guidance of its first chairman, the late Dr. Mortimer Williams Raynor, Medical Director of Bloomingdale Hospital, who died on October 5th, 1935.

Dr. Henry E. Sigerist, Professor of the History of Medicine at Johns Hopkins University, and Dr. Edward Sapir, Professor of Anthropology at Yale University, are consultant members of the Committee. They will advise and guide in that part of the work which touches their respective fields.

The Executive offices of the Committee are located at Room 1404, the Medical Arts Center, 57 West 57th Street, New York City, and will be in charge of an executive assistant.

THE MEDICAL STUDENT AND THE SOCIAL PROBLEMS CONFRONTING MEDICINE TODAY[1]

HENRY E. SIGERIST

Fellow students:

It is a joy to talk to you. I feel as one of you. I have been a student all my life, eager to learn. I have probably seen more than most of you, having had the good luck to live and work in quite a number of countries, and still having the privilege of spending part of the year travelling. But I know that I have a great deal more to learn. It is fifteen years now since I began teaching at the University of Zurich. I do not know how much the students got out of my teaching but I know that it meant a great deal to me, that it helped me tremendously in obtaining a clearer understanding of the developments and trends of medicine.

The fact that we have come together, nearly three hundred medical students and some faculty members from fifteen different medical colleges to discuss some social aspects of medicine makes it evident that we all feel that something has changed and is still changing in the medical world. As Dr. Bayne-Jones said yesterday, such a conference would have been inconceivable in America twenty years ago. It would not have occurred to the medical students that there were social problems which they had to discuss. This does not mean that there were no acute social problems at that time, by no means, but the medical profession felt secure. The physician had his definite place in society. He followed the call of his profession and in doing this was sure to make an income. Things have changed.

Time marches on inexorably. There is no way back. There is but one way for us to go, the way that leads into the future. It is useless, it is sheer romanticism to call for the good old days. And besides, how good were those days of ruthless competition, when the stronger crushed the weaker without mercy, when we danced on a volcano.

What has changed? To put it briefly; a new society has developed

[1] An address delivered before the Third Eastern Medical Students Conference in New Haven, March 15, 1936.

in the western world, highly industrialized and highly specialized. At the same time a new medical science developed, highly technical and highly specialized also. The natural sciences and technology were the revolutionizing forces that transformed both society and medical science. This was a slow and gradual process but the day has come when we have become aware of it. Facing a new situation, what are we doing? We are endeavoring by all means available to preserve the old forms of medical service, forms that were adapted to a society and to a medical science that do not exist any longer. Hence, the unrest in the medical world.

There is a great deal of talk about medical ethics. You will hear quite often that to be ethical for a physician is to be conservative, living up to the age-old traditions of medicine, swearing to the hippocratic oath. Nothing is more erroneous. I grant you that there are certain timeless values in the physician's profession, that the basic relationship between physician and patient has always been the same, yet there can be no doubt that medical ethics change also. What determines medical ethics is a definite medical ideal, an ideal set not by the physician but by the society he is serving. It is obvious that this ideal changes in changing societies and that it makes a difference whether in a given society the physician is a craftsman, a cleric or a scientist. And just as medical ethics are determined by a medical ideal so is medical education. All education tends towards a definite educational ideal. Every society has an ideal citizen in mind and endeavors through elementary education to form this ideal citizen. If there is unrest in medical education, if we spent the whole morning discussing " What is the matter with medical education? " it shows that we are not quite sure as to the medical ideal of our days.

In the medical as in other fields there is today a conflict between a new reality and the old form. What shall we do? Shall we stand aside letting things go and then complain if we dislike the developments, or shall we take an active part in the evolution that is bound to come. If we want to do this, we must be able to analyze the situation, we must become history-conscious and must attempt to take the long view of things.

Here in America we must be aware of the fact that the country has lost its unique position in the world. There is no frontier any

longer. There are no unlimited opportunities for the individual as before. There is practically no immigration and, as a result, society is becoming stabilized and the classes are becoming conscious of themselves. In other words the conditions are more and more similar to those in European countries and you will not be spared any trial through which Europe went. It is certainly worth-while to study the European conditions carefully and to learn from them in order to avoid mistakes.

We are proud of our civilization, but are we civilized? We have devised marvelous machines but we do not know how to use them. We still have recourse to war, the most barbaric means of solving international problems and there are even countries in which war is glorified. We thought the 19th century had gotten rid of certain primitive legal procedures, as for instance the torture, and yet in quite a few so-called civilized countries prisoners are tortured in the most savage way. I do not think that we can call ourselves civilized yet and to the future historian looking back at the five thousand years of history of mankind from the early days of Egypt, Babylonia and China to our days, this period will appear as a time of dark ages. Our only excuse is that five thousand years is a short period in the history of mankind.

And yet man has a craving for culture. Man is ready to sacrifice himself and to sacrifice his personal interests for the attainment of a higher goal. Under proper guidance and proper education under different social conditions, mankind will be able to develop a civilization. There will always be suffering in this world because there will always be love and hatred, frustrated ambitions, but we begin to realize that man should not be allowed to suffer from such primitive causes as hunger or cold or preventible diseases.

The conception that all inhabitants of a country, regardless of their race, social status and earning capacity, are entitled to the best medical care that the country has to give is beginning to crystallize today. It has been recognized that the people's health is essential for the welfare of the nation. Yet the progress of medicine has raised the cost of production to such an extent that medical service has become too expensive to be available to all under our present system of free competition. That this system could not possibly work completely was recognized long ago and in all Western coun-

tries there was an increasing tendency of the state to take over medical functions. Many such functions have become part of the administration of the modern state. Through its public health service the state endeavors to protect social groups from outside menaces. The state is protecting the health of certain groups particularly threatened, pregnant women, infants and school children. It is taking care of the tubercular and the mentally sick patients. Through legislation, compensation bills and similar laws, it endeavors to protect the working population. It has called for the physician as expert advisor in the administration of the law. In many countries the state is requiring and supporting compulsory health insurance and there can be no doubt that the tendency towards state interference in health matters is growing all over the world. It is justified by its success. Nobody can deny that the hazards of life have been tremendously reduced today, thanks to the organized medical work done by state agencies.

The principle of medical service given on the basis of free competition has also been overcome by charity institutions providing for the medical care of the indigent sick. Charity, however, is an unreliable institution, funds being most needed in times of economic depression when they are least available.

Yet in spite of all efforts the fact remains that many members of our society do not receive adequate medical care. Medical science today has infinitely more to give than the people actually receive. There are still thousands of people who die prematurely, whose lives could have been prolonged if the physician had had the opportunity to intervene in time. We still have huge reserves of medical knowledge that we can not fully apply due to religious, social and economic factors. This maladjustment is not the result of the present economic depression. At the height of prosperity in 1928 the Committee on the Costs of Medical Care was appointed to survey the field because, even then, in a country that had the highest material standards ever developed in the world, conditions were such that many sick people had no adequate medical care.

This is the situation that we are facing today. I repeat there is a conflict between a new reality and an old form. It is not enough to interpret the world, one has to change it in order to improve it. If the medical conditions are not satisfactory, they have to be changed

in order to improve the people's health. This is the task that is set for you, the young generation. You can not afford to stand aside. It is not only your own personal future that is at stake, but the welfare of the society you are serving. You will have to take an active part in the development. You can not expect the old physicians, the leaders of the medical organizations to do all of the work, to solve all of the problems. The leaders of our professional organizations are great doctors who have done splendid work in the various medical fields. They belong to another generation than yours and if the old system has worked very well for them, it does not mean that it will work for you today. They attained high positions by devoting their lives to their profession and most of them naturally had no time for studies in history, sociology or economics. The problem that we have to solve today, however, is not primarily medical but first of all social.

Whatever the future will be, the life of your generation will not be an easy one. And yet, what does it matter? To have a "good time" is the ideal of an animal and not a human ideal. What counts in life is to be able to do some creative work, to be able to give one's share in forming the world, in improving it. And this is easier today when everything is in the process of transformation than ever before. It may be objected that you have no experience yet. This is true, but what is needed at the present time, just as much, is enthusiasm, courage and an iron will to create a better world.

I anticipate your question, "What shall we do?" My answer is: study! Study history, political economy, sociology! I know that your time is limited and that the medical curriculum is exceedingly absorbing. And yet, if you want to live and to act consciously and intelligently, you have to have some knowledge in the social sciences. The idea is not to make you experts in the subject but you must have a certain knowledge in order to be able to understand the world in which you live. Without some knowledge of history you will not be able even to read the newspapers intelligently. History teaches us where we stand today and what tasks have been assigned to us. And just as political history gives us some orientation as to the world at large so the history of medicine helps us to understand our medical situation. Medical history is studied and taught, not in order to burden you with names and dates, but in order to allow you to look

at medicine as from a distant planet. The historian of medicine endeavors to make unconscious trends conscious so that we can face and discuss them openly.

Medicine the way we practice it today is a service that is being sold by the physician and purchased by the patient. Medicine, therefore, definitely has an economic aspect. It has to fit into an economic system. How can we discuss any of these features if we do not know the elements of economics, if we do not know the mechanism of production, what wages are and what determines wealth or poverty in a society. Without economics there is no understanding of history, either general or medical. And finally you can not afford to be disinterested in sociology. The physician is serving society. He has to fit himself into a given structure of society. He has to see patients who come from all strata of society and has to treat diseases that are quite often due to an environmental influence. The majority of our patients live differently than we do, under infinitely worse conditions. In my seminars I often make the experiment of asking the students if they have ever seen the working conditions in a mine or a steel mill. Very few have and yet it is essential to us to have an intimate knowledge of the living and working conditions of our patients and to know the mechanisms responsible for so much misery and illness.

We require that the student who applies for admittance to the medical schools have a definite training in the sciences during his college years. We have no requirements in the social sciences and yet there can be no doubt that medical students should have had a sound training in these sciences as well. Let us not forget that medicine, after all, is a social science, the physician's task being to keep his fellow-men socially adjusted or to readjust them as the case may be.

You can not change the world by looking into the microscope and test tube. Science for science's sake is admissible in stable periods. And yet, if we have troubles today, it is due to a certain extent to the fact that our medical ancestors of the last century directed all their efforts to laboratory work, neglecting the social side of medicine. In times like ours the microscope and the test tube become powerful weapons. We need science today more than ever. Several European countries have demonstrated what happens when science

and reason are disregarded and when a state is built on a vague, mystical ideal. We need science but we still have to learn how to make use of it for the problems of mankind. Here, again, history has a great lesson to teach.

The physicians are looked upon as leaders in the social developments to come. They are perhaps better qualified than any other professional people to assume active leadership. They are scientists applying their science to a social and highly humanitarian purpose, getting in close touch with all classes of society. You will be physicians soon and you are considered members of the intelligentzia, of the educated class. But are you educated? Yes, as far as medicine is concerned. You are given the best that medical education can give today. However, you will admit that politically the majority of the medical students in this country are perfect children. Yet you are all responsible citizens of a democratic country having the privilege to vote and to influence the destinies of your country. To me, coming from abroad, it was a shock to see how many educated people vote purely emotionally or following family traditions without devoting any study to the problems at stake. This is a dangerous attitude. I remember that once in Germany one of my friends was asked in my presence whether he was a Nazi or a Socialist. His answer was, " I am a physicist." Well, he is still a physicist, but he is told now what he has to think. We can not afford to be politically indifferent. Politics is everything in life and in the medical field as well. Whether medicine succeeds or fails, whether the arts and sciences flourish or starve, is ultimately due to politics. We are fighting to improve the people's health. We have the actual knowledge to prevent and cure a great many diseases, to save endless people from premature death, but whether we can apply our knowledge fully depends much more upon the statesman than it does upon us. We know for instance what tremendous importance the housing problem has for the people's health, but all we can do is to point out the facts. The actual task is political.

I would like you to be critical, to doubt authorities, to form your own judgments. You are trained to be critical in science but as soon as a scientist leaves his own domain, he is often as uncritical as a member of a savage tribe. It is so easy to join a church, be it religious, political or scientific. All the thinking is done, you receive

the answer ready made for every problem and all you have to do is to repeat slogans. I do not mean that you should not join any group. On the contrary, the individual is powerless and only group action carries weight, but do not join before you have done your own thinking. One criticism I have with the American educational system is that the students are constantly advised. Life is made much too easy for them. They go to the university as to a source that will give them a certain amount of knowledge conveniently dosed so that it can be absorbed without much effort. They do not feel challenged. They look to their professors as to authorities whose words they repeat often quite uncritically. I infinitely prefer to see my own views opposed by my students than to hear them quoted as authoritative statements. The European student who has to study independently without being constantly advised and supervised and who has to struggle against endless difficulties, has a much better chance to develop his personality.

How can medical students acquire knowledge in history, political economy and sociology? It is obvious that courses can help a great deal. We are giving them at the Hopkins and the response they find proves that they are answering a real need of the students. The sociological course that I started several years ago traces the development of society and the medical profession in their inter-relationship. It shows what attempts at medical organization have been made in other countries and what the American situation is. The outlines of this course are briefly as follows:

1. *Developments in the position of the sick man and of the physician in society.*

   Disease as a punishment for sin (Semitic society). Disease rendering man an inferior being (Greek society). Privileged position of the sick man, from the beginning of our era on. Duty to health (Modern developments).

   The physician a craftsman (early Greece), a cleric (early Middle Ages), a doctor.

2. *Medical service in the ancient societies.*

   The Code of Hammurabi and ancient Persian laws regulating medicine. The wandering and the community physician in Greece. Ancient medical ethics. The conditions in the Roman Empire. Valetudinaria for slaves and military hospitals. Beginnings of medical licensure.

3. *The Middle Ages.*

   How was medicine organized in the feudal society of the mediaeval states? Medicine and the guilds. The Universities. The Church and medicine. The legislation of Frederick II.

4. *The rise of capitalism.*

   Development of a new economic order. Medical conditions from the Renaissance to the 18th century.

5. *The industrial revolution and its consequences for the people's health.*

6. *Developments in Germany.*

   Socialized medicine in the Duchy of Nassau (1818-1861), the discussions of 1848, history of German social insurance from 1881 to 1933.

7. *Political philosophy and medicine.*

   a. Liberalism.

   Medical organization and trends in England, France and the Scandinavian countries.

8. *Political philosophy and medicine.*

   b. Fascism.

   Medical organization and trends in Italy and Germany.

9. *Political philosophy and medicine.*

   c. Socialism.

   The protection of health in the Soviet Union.

10. *The American situation, I.*

    Developments and facts, an analysis of the reports of the Committee on Costs of Medical Care.

11. *The American situation, II.*

    Discussion of the various present day experiments in medical organization.

12. *Conclusion and outlook.*

Most medical schools in this country are beginning to recognize that some kind of instruction has to be given to the students along that line, and in most schools courses are given on economic and social aspects of medicine. In the majority of cases this is done in a more or less haphazard way. Most medical schools fail to realize that they are called to assume leadership in this field also. Their research activities should not be limited to increasing our knowledge

of disease, of its cure and prevention, they should include the ways and means of applying our knowledge. They should include research in the sociology of medicine. With their highly specialized staffs and hospital facilities the schools have the opportunity of experimenting on a very broad basis. Millions of dollars are spent in laboratory research but hardly any money is available to study how we can apply the results of our research to the maximum benefit of the population. I would like to see special departments or special divisions of departments established in which medical men could study the social implications of medicine hand in hand with economists, sociologists and social workers. Such departments would be the ideal places to train a socially minded generation of physicians.

There is no doubt that courses can help the student a great deal and yet they do not suffice. The idea of a course is to inspire, to stimulate, to challenge the student, to show him what the problems are, the actual work he has to do himself. I know that your time is limited but I would advise you to spend whatever spare time you have in studying and trying to keep in touch with the world outside the medical school. Read! Read newspapers, but not only those of one political group which are naturally one-sided. If you want to form an opinion, you must read the newspapers of the various groups. Read the weekly political magazines of which there are so many excellent ones in this country. Read books, but not only medical books. There is more psychology in novels like those of Marcel Proust, Thomas Wolfe and others than in many text-books of psychology. The classics are a mine of wisdom that should always be open to us. And wherever you go, keep your eyes open, observe and reflect on what you see. Observation and correct reasoning are the keys to medicine but you should use them as well in the other fields of human activity.

I would further suggest that you form discussion groups. There is nothing more stimulating than frank discussions with fellow students. A year ago the students of our medical school spontaneously organized a *Social Problems Forum* which meets on two evenings of every month and it has been tremendously successful. Each meeting has had an average attendance of far more than a hundred students. The following subjects have been discussed during the past year:

"The Medical Student in the Modern World." Dr. Henry E. Sigerist.
"The European Situation." Dr. F. S. Dunn.
"Sterilization as a Social Problem." Dr. Alan F. Guttmacher.
"Fascism." Dr. Johannes Mattern.
"Medicine in Its Relation to Social Security." Dr. Frankwood Williams.
"The Early History of the Johns Hopkins Medical School." Dr. Alan Chesney.
"Preventive Medicine in Evolution." Dr. Allen W. Freeman.
"The Protection of Health in the Soviet Union." Dr. Henry E. Sigerist.
"The Development of Public Health Work in the Eastern Health District of Baltimore." Dr. H. S. Mustard.
"The Social Aspects of the Control of Syphilis." Dr. J. Earle Moore.
"Housing in Elizabethan England." Dr. Sanford V. Larkey.
"Should Housing Be a Public Utility?" Dr. Ivan E. McDougle.
"Genetics, Sterilization and the Social Order." Dr. Mark Graubard.
"Science, Medicine and the Common Life." Dr. Anton J. Carlson.
"Will the Recent Neutrality Legislation Keep Us Out of War?" Mr. Frederick J. Libbey.

I hear that other schools are starting similar discussion groups and our Third Eastern Medical Students Conference is one more symptom of the generally felt need for frank discussions of the burning problems of our days.

If the medical students of this country are willing to study the social developments of medicine, they are justified in having a voice in the discussion of the readjustments that are taking place. The individual voice is lost, but properly organized the young medical generation could have a great influence in the coming developments. After all it is its own future that is being prepared.

Do you realize how many you are? There are nearly 26,000 medical students in this country, about 6,500 internes, about 2,500 resident physicians—all in all a group of about 35,000 young medical men who, a few years from now, will play an active part in the protection of the people's health. This is a strong group, strong enough to have its own journal as a forum for discussion. I am sure that the faculties and the profession at large would welcome associations of the medical students. It would give them a chance to hear what the young generation thinks and to consult with them on questions of medical education. In most European countries the students and internes formed associations long ago and have taken an active part in the developments. This country is no longer a colonial or a pioneer

country and conditions similar to those in Europe will necessarily lead to similar developments. Being less burdened by tradition than the European students are, you have good chances to learn from them how to avoid mistakes and to do a better job.

Whatever your position is I wish you would make an effort to understand the foundation of our society, to analyze the tendencies and trends. Keep in mind that you will never be able to oppose these trends successfully because they are beyond your control, because they are the inexorable result of society's very foundation. But if you recognize them clearly, if you are willing to cooperate, to fight if necessary, you will be able to accelerate the developments and to make this world a better world.

MEDICO-HISTORICAL ACTIVITIES IN THE UNITED STATES

DISTRICT OF COLUMBIA

The George Washington University, WASHINGTON

A course in the History of Medicine, one hour a week, is given by Dr. Charles Robert Lee Halley.

LOUISIANA

Tulane University of Louisiana, NEW ORLEANS

A new group, interested in medical history (Medhistophilic Club), has been formed at Tulane. Its membership is limited to ten men. It will meet once a month at a restaurant, and the members will present papers in rotation, one a month, i. e. ten papers in all will be presented during the scholastic year. The first meeting was held in March and the paper presented was "Poetry and Physic" by B. B. Weinstein.

MARYLAND

JOHNS HOPKINS UNIVERSITY, BALTIMORE

Institute of the History of Medicine

The following lectures were delivered by members of the Institute:

March 15th—"The Medical Student and the Social Problems Confronting Medicine Today." Dr. Sigerist. *The Third Eastern Medical Students Conference* in New Haven.

March 17th—"The Philosophic Background of Medicine." Dr. Sigerist. The Smith-Reed-Russell Lecture at *George Washington University*, Washington, D. C.

March 31st—"Life and Literature in Books of Science." Dr. Larkey. Friends of the Library, *Johns Hopkins University*, Baltimore.

H. E. S.